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Tel: 01225 442244 Fax 01225 462986
Email: themix@futurenet.co.uk
Website: www.themix.net

Editorial
Deputy Editor Andrea Robinson
Deputy Art Editor Claire Watkins
Reviews Editor Oz Owen
Online Editor James Merrifield
Production Assistant Jonathan Miller
CD Mastering Adam Crute

Contributors: technical
Alan Branch, Adam Crute, Trevor Curwen, Steve Evans, David Harrow, Adam Fuest, Jon Musgrave, Tim Oliver, Seb Pecchia, Sean Vincent, Jim Warboy

Contributors: features
Luke Cunningham, Hamish Mackintosh, Derek O'Sullivan, Simon Ounsworth, Phil Strongman, Sil Wilcox, Alex Williams, Sam Winwood

Photography
James Cumpsty, Gavin Roberts, Neil Godwin, Katherine Lane Sims

Advertising
Group Ad Manager Simon Lewis Deputy Ad Manager Emma Mimmack Senior Sales Executive Rebecca Baron Classified Sales Caroline Harding

Production
Production Manager Matt Gregory Production Co-ordinator Lee Thomas Music Copyright Co-ordinator Laura Baker Ad Design Scott Caines

Marketing
Marketing Manager Donna Hollund Product Manager Annabel Parmenter

Management
Senior Editor Chris Kempster Senior Art Editor Katie Beard Assistant Publisher Andy Jones Publisher Simon Wear Group Publisher Simon Haisman Publishing Director Mike Frey Circulation Director Sue Hartley Managing Director Jane Ingham

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Shut up, listen and learn...

Chicago producer/DJ Frankie Knuckles recently won the Lifetime Achievement Award at the inaugural DanceStar Awards in London

Technology moves forward so rapidly that in doing so it takes away the focus from the human being. We have to be careful we do not lose that focus. The most shocking aspect for me is how technology has turned this particular industry into a DJ culture. The kids aren't aspiring to be rock stars any more – they want to be DJs or producers. I think it's great they want to do that, but I just hope and pray that in the end they are really serious about the music and do their homework. I hope they study music – not endlessly sitting down being anal about it – but really *listening* to music.

My advice is: whatever you hear that appeals to you, listen to it. Don't worry about what someone else thinks about why you are listening to it. If you like it, listen to it and imbibe it, and the day will come when you'll be surprised how valuable all those listening experiences, with all those different kinds of music, will become.

I have friends who were saying to me when I was younger: "Why are you listening to that gospel stuff? Or: "Why are you listening to those vocals?" I told them: "I'm not listening to it because you do or don't like it; I'm listening to it for myself". It's surprising listening to some of the stuff I have worked on how many influences there are in terms of vocals, vocal arrangements, string arrangements, production arrangements and harmonies.

It's important for me to listen to what other DJs are playing, as I am a DJ. Only last weekend I was at a festival in Brazil, which was very interesting. I played in between Bob Sinclair and Paul Oakenfold. In the other room were Green Velvet, Armand Van Helden and Westbam. Fortunately I was able to listen to all of them and it was an eye and ear-opener!

The last time I had a chance to actually listen to Oakie play had to be 1992 in Australia. This chance to hear him and to watch the audience reaction to him and his response to them was amazing. I totally get what he does and what that music is about – it has a certain soul and purity – although my vocal house is so radically different, a million miles from his style. The crowd get that vibe and that soul because he does it so right. Seeing that makes me feel like a fish out of water, yet minutes before, the crowd were responding – on top of each and every record I played. It was such a refreshing experience, and it made me realise I can continue to do this for a very long time...

Frankie Knuckles

about THE MiX

THE MiX is the essential accessory for the recording studio. Our equipment reviews, written by working producers and engineers, give you an impartial opinion of the latest studio and recording gear, and our interviews get to the heart of the current techniques and issues in the recording industry.

THE MiX cover-mounted CD helps you produce better music, by providing a varied monthly selection of collectable studio-quality samples provided by some of the top pro's in the business, demos of the latest software and hardware, and audio tutorials demonstrating contemporary recording techniques.

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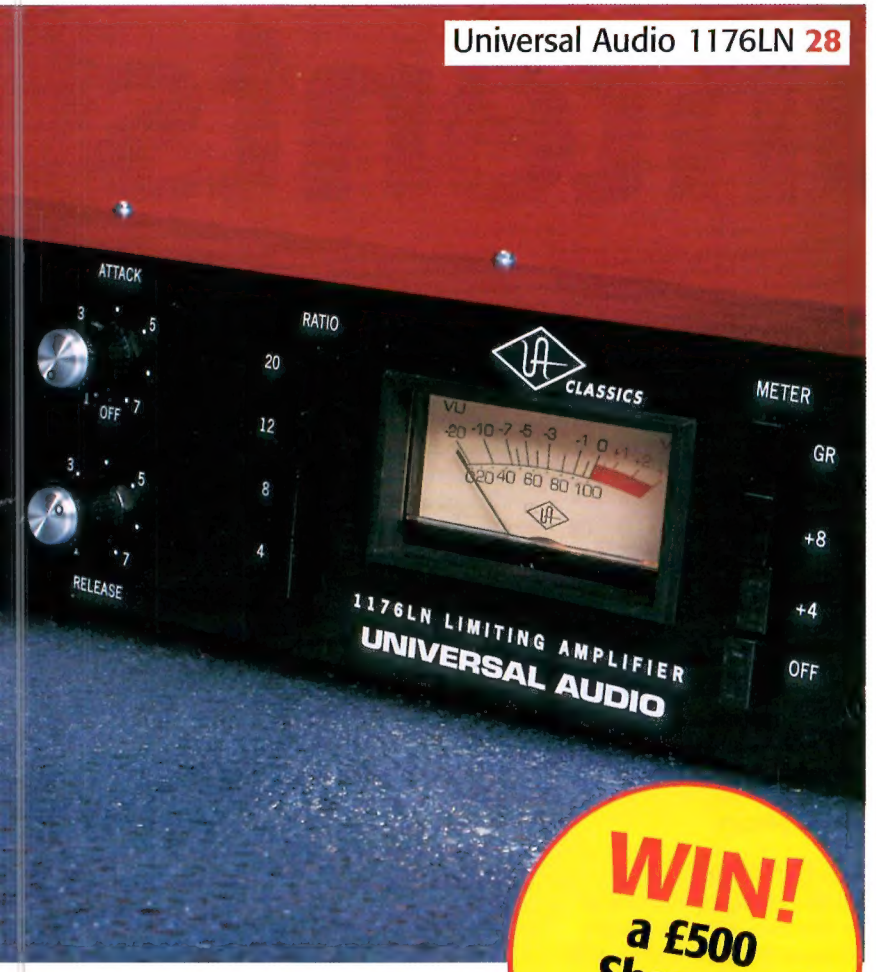

Universal Audio 1176LN **28**

WIN!
a £500 Sherman Filterbank
turn to page 12

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sound advice

76 Classic Sounds: Mellotron
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software

track 1

PC and Mac

A bunch of the best free VST plug-ins around. If you get inspired by these, why not have a go at creating your own – turn to our *DIY Plug-ins* article starting on page 83

Maxim Digital Audio Pack 3
Multi-band distortion, a beatbox, an amp and speaker simulator, a lo-fi sampling simulator and a dynamics plug with conventional compressor/limiter/gate

Maxim Digital Audio Pack 4
Multi-band compressor, resonant filter, tone generator and pitch tracker plugs

Maxim Digital Audio Pack 5
A Leslie rotary speaker simulator, de-esser, stereo image adjuster and envelope

Steinberg Karlette
A tape-loop echo emulation that can be used both as a send or as an insert effect

Steinberg VB1 Virtual Bass
A virtual bass with adjustable pickup

Smart Electronix SupaPhaser
Phaser plug controlled by a mixture of configurable LFO and envelope followers

Smart Electronix Cyanide
Wave-shaping distortion with low and high-pass pre and post filters and gain

Dsound DSG-E1
An attractive graphic equaliser

PC only

More VST freeware, plus demos from this month's reviews and *Plug-in Corner*

Muon Atom Synth
A freeware virtual instrument plug-in for Cubase VST and Logic on a PC. This '*The Mix* Special Edition' of the software emulates a classic single oscillator analogue synth, and does it awfully well at that!

Tassman Soft Synth p. 58
A new take on the concept of modular synthesis, with some cool presets and acoustic emulations. Here's the demo for you to try out for yourself

GakStoar Delta p. 14
Demo version of the great-looking VST analogue synth

PSP Mixbass p. 14
Get your bass sounding punchy or add some beef to your drums with this demo for VST, Wavelab and Logic

Mac only

Another free VST plug-in

Green Oak Excitifier
A harmonic exciter. Un-muddy your mix by adding upper harmonics without excessive noise – but beware! This type of effect often provokes over-use…

Note: check the Read Me files included with all free software for full details and instructions

Muon Atom created for *The Mix* by Muon Software: www.muonsoftware.com

PC & Mac VST plug-ins Pack 3, Pack 4, and Pack 5 courtesy of Maxim Digital Audio: www.abel.co.uk/~maxim/vst/index.htm ©Paul Kellett

VB-1 Virtual Bass Guitar and Karlette tape loop echo plug-ins courtesy of Steinberg: www.steinberg.net

SupaPhaser and Cyanide plug-ins courtesy of Smart Electronix: www.smartelectronix.com ©Bram de Jong

Excitifier plug-in courtesy of Green Oak: www.greenoak.com/vst.html ©Glenn Olander

demo of the month

track 2

Chiswicked: 'Aisor' p. 91
An ambi-funk instrumental with a laid-back vibe, featuring clever use of samples

gear demos

track 3

Universal Audio 1176LN p. 28
Here it is: the classic compressor in action. The 1176 beefs up one drum loop, adds some room ambience to another, then unleashes its various ratios on the classic Les Paul/Marshall combo and a piano

tracks 4-5

Roland XV-3080 p. 50
A run through some of the onboard sounds and demos from Roland's new pro sound module and SRX expansion card

track 4
i. Grand Piano
ii. St Harpsichord
iii. British B Organ
iv. Air Pad
v. St Choir
vi. XV Strings
vii. Hornz
viii. SteelGT
ix. Cutter w. Mod Wheel
x. The Beast

track 5
i. SRX hats
ii. SRX piano
iii. SRX rides

tracks 6-7

CreamWare Pulsar II p. 32
A handful of long synth loops created on the awesome new card from CreamWare. Feel free to sample these for use on your own tracks – if your sampler's up to it…

sound advice

tracks 8-9

Mellotron p. 76

A handful of samples from the *Michael Pinder Presents Mellotron* CD, in their authentic seven-second glory. Turn to page 80 for a chance to win one of these CDs for your very own

track 8

Lead sounds: middle C

i. Mellotron flute
ii. Chamberlin flute
iii. Mellotron cello
iv. 16 violins
vi. M300 string
vii. 3 violins

track 9

Voices: C major chord

i. Mellotron boys' choir
ii. Mellotron 8-voice choir
iii. Chamberlin male choir
iv. Chamberlin female choir

track 10

D.I.Y. Filter demo p. 83

Our do-it-yourself low and high-pass filters are put through their paces on one of programmer Jezar's own tracks

i. Unprocessed track
ii. Low-pass 1
iii. Low-pass 2
iv. High-pass 1
v. High-pass 2

samples

please read before using the samples on this CD!

All equipment demos, as well as samples marked * on the listing on these pages, are not licensed for commercial use. Samples that are not marked * may be used freely within any musical composition, provided they are credited to *The Mix Sound Factory*.

tracks 11-15

Sherman Quad Modular Filter

It was our cover star back in issue 75, now the mighty QMF – the mother of all filters – is unleashed on some unsuspecting loops, with dramatic results. Sample and abuse at will...

track 11
Sherman 1: D'n'b loop with pan, delay and reverb

track 12
Sherman 2: Back to the '80s with this inspired synth loop

track 13
Sherman 3: Scuttler loop

track 14
Sherman 4: Evil Latino

track 15
Sherman 5: What the f**k? Weirded-out synth pad that starts to scream

track 16

Keith LeBlanc

(also in WAV and AIFF format on track 1)

Ten exclusive loops from one of the world's top drummers. If you like these, look out for Keith's forthcoming sample CD on AMG – we'll have more news on this next month

tracks 11-16 produced by Alan Branch

tracks 17-22

Globo

(also in WAV and AIFF format on track 1)

An off-the-wall collection of sounds, voices, instruments and hits from Globo producer and band member Paul Thompson

track 17
i. Alive poem

track 18
i. Breakdown bassline
ii. Breakdown distort
iii. Breakdown guitar2
iv. Breakdown guitar3
v. Breakdown voice

track 19
i. Breathy section
ii. Dontcarevoice
iii. Flirtvoice
iv. Full beat

track 20
i. Hit guitar
ii. Hits plus

track 21
i. Jazzplus
ii. Onward stings
iii. Radio take 1
iv. Screaming guitar
v. Sequence build

track 22
i. Short perc
ii. Slides
iii. 66328 confused
iv. Together kick
v. Tribal

Netscape Online: the free internet service in association with Future Publishing

track 1

Sign up for the new FREE Netscape Online Service, sponsored by Future Publishing and featuring content from Future Publishing's web sites.

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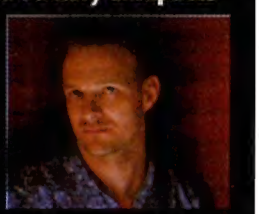
Make Netscape Online part of your daily routine. Load it up from *The Mix* CD now.

This month's *Sound Factory* samplists

Keith LeBlanc
Drummer Keith LeBlanc played a pivotal role during the early years of hip hop. As a member of the celebrated house band for Sugarhill Records, he played on numerous classics of the genre. As an artist in his own right, he pioneered the electro/sampling mode in the mid-'80s with the 'Malcolm X – No Sell Out' single, before joining forces with Adrian Sherwood, Doug Wimbish and Bernard Fowler in Tackhead. Acclaimed as a drummer able to meld rock and funk styles into something both futuristic and groove-heavy, in recent years LeBlanc has busied himself with his own esoteric productions, while his live performances have showcased an infectiously jazzy drum'n'bass style.



Paul Thompson – Globo
Globo rose out of the ashes of industrial rock band Basti, who played their final gig with Orbital, Prodigy and the Shamen at SoundCity in 1992. Four members broke away to move into the teeming dance scene and formed WorldNet Productions, producing club events (Club Globo), an independent radio programme (WorldNet Wireless) and a string of controversial releases – including Globo's powerful debut album *Pro War* in 1995 and the infamous 'Thirteen' single, which sparked a legal battle that almost resulted in the group's incarceration. Their second album, *This Time It's Globo*, is out now on Hydrogen Dukebox (see interview, p. 62).

news

Your monthly report on who's who and what's new in music production...

Full speed ahead

New Pro Tools plug-in for time and pitch modification

Free yourself from the shackles of keys and bpms with Wave Mechanics' latest Pro Tools plug-in

Ever wanted to use a loop recorded at 100bpm in a 120bpm track? Or wanted to sample something in the key of F for a track that's in the key of G? How about transposing an entire mix into a new key? Ever needed to squeeze a 35-second commercial into a 30-second spot? Well, now you can, courtesy of Speed, the latest DSP plug-in for Pro Tools from Wave Mechanics.

Speed uses an entirely new approach to time and pitch modification to enable transformation of single instruments or entire mixes – without inducing the distortion normally associated with these processes. Allegedly, even stereo mixes can be processed with perfect phase alignment. A graphical mode allows users to draw in variable tempo and pitch changes.

Speed is now available as an AudioSuite plug-in, and can work with Pro Tools TDM, PowerMix and Digi 001 systems. Wave Mechanics have also added Speed to their UltraTools 2.0 bundle to include Pitch Doctor, Pure Pitch, Soundblender and Speed for £1,028. Existing UltraTools 1.0 users can upgrade to 2.0 for £254.

Price: £429
More from: Unity Audio
Tel: 01440 785843
Web: www.unityaudio.co.uk

Making virtual waves

Waldorf 'relaunch' legendary '80s PPG Wave synth as VST plug-in

One of the buzzwords of the year is 'reincarnation'. First we had Native Instruments' Pro-Five, which brought Sequential Circuits' classic Prophet 5 analogue polysynth back to life as an affordable Cubase VST 2 plug-in. Now, hot on its heels, comes the PPG Wave 2.V by Waldorf, a similar software resurrection of the mighty PPG Wave 2 series.

Synth fans pushing the age of 30 will fondly remember the original ubersynth, with its distinctive blue front panel and equally distinctive sound (Frankie Goes To Hollywood's 'Two Tribes' was created almost entirely on a 1984-vintage PPG Wave 2.3). Historically, PPG pioneered the first digital wavetable synth with analogue filters back in 1981, promising a revolution in sound creation. One of the Wave's most interesting attributes was its ability to sweep through 64 waveforms – a wavetable in PPG-speak. Almost 2,000 waveforms were available within the Wave's 32 internal wavetables, a great perceived improvement over the typical analogue synths of the day that were limited to a few static waveforms like sawtooth, triangle and pulse.

Thanks to Waldorf and Steinberg, the Wave is back, and as a VST instrument gains all the advantages of being integrated into the VST production environment: outputs appear directly in the VST mixer and MIDI tracks are routed directly, so no messy MIDI 'cable salad' to worry about here. Unlike its hardware forefather, the PPG Wave 2.V's polyphony depends solely on computer CPU power – up to eight 64-voice instruments, each with 8-part multitimbrality, can be simultaneously opened. What's more, Waldorf include a new interface page, for intuitive graphic editing. And at roughly 1/50th of the cost of the original 8-voice Wave 2.3, who's complaining? Not us.

Price: £149
More from: Arbiter
Tel: 020 8970 1909
Web: www.arbitergroup.com

The original ubersynth is back as a VST plug-in: Frankie say it looks pretty realistic!

Here comes trouble...

Meet J-Reverse of the Black Legend production team behind the latest sampling controversy

Unless you've been living up a mountain in Tibet in a state of blissful, silent contemplation, then chances are you've probably heard Black Legend's current house/garage hybrid floor-filler 'You See the Trouble With Me' wafting over every available airwave. Playlisted almost universally, it's the work of Italian dance duo J-Reverse (a.k.a. Ciro Sasso) and Enrico 'BSJ' Ferrari.

Based on the original disco track by Barry White, the boys ran into a little trouble with their liberal sampling of the trademark vocals of the Walrus of Love himself, which were taken from a live recording and appeared on their original version of the track. The band re-recorded the vocals with a doppelganger and the track now seems certain to continue its ubiquitous rise toward being the summer anthem from Bognor to Ibiza and all stops in between.

J-Reverse spoke to *The Mix* from his purpose-built studio overlooking the sea in Formia on the Tirreno coast of Italy about the dizzying ascent of Black Legend.

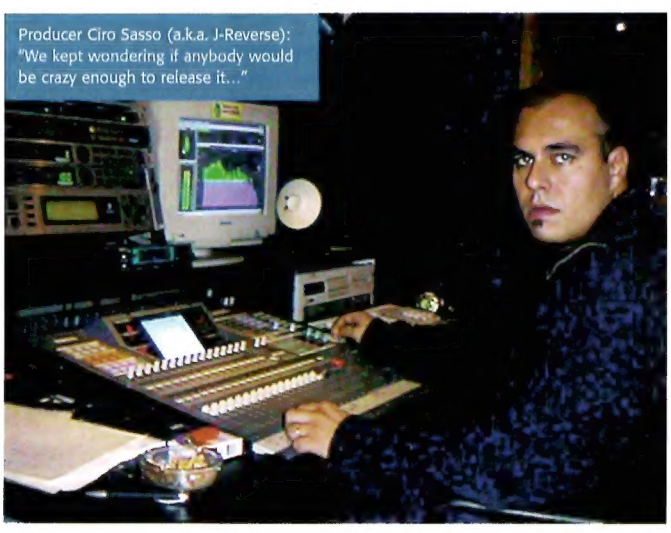
Black Legend: J-Reverse, left and Enrico 'BSJ' Ferrari, right, with the man who dared imitate the Walrus of Love, Elroy 'Spoonface' Powell

Can you give us a little background on Black Legend?

Black Legend feels like a natural evolution of my previous work. I always wanted to work doing something I was passionate about – electronics! [*Ciro is a fully qualified Electronic Technician.*] I began DJ-ing in 1986 and started a little recordng studio in '90 with some others producing for Italian labels like UMM-Flying, Lemon and Dig-It. I moved to New York for two years in '93 where I learnt a lot from Dave Feliciano – the Mantronix sound engineer – and began remixing and producing for Cutting Records. I did the remix of 'Shimmy Shake' by 740Boyz and 'Kickin' in the Beat' by Pamela. When I came back to Italy I set up my own production company – Mega Tone Productions – and built my own studio. I've been using my J Reverse pseudonym since 1997.

How did the idea for the track originate?

It began as us having a laugh. If I've spent a long time in the studio following all the rules I like to have a little fun and do something purely for pleasure. Myself and Enrico went to my studio after dinner and just started sampling stuff that we'd always liked. We didn't set out to make a record, but by 7am the next morning the track was finished and down on DAT. We kept listening to it and wondering if anybody would be crazy enough to release it. It's funny that sometimes you can spend weeks on a track and not be as lucky as we were in 6-7 hours!



Producer Ciro Sasso (a.k.a. J-Reverse): "We kept wondering if anybody would be crazy enough to release it..."

What gear did you use?

I've been working with Cubase on every platform since 1990 so I used Cubase VST running on a Mac G4 for composing. My studio was built around me – I spent about a week during the construction planning where everything would go, as having my gear in the right place is very important for my creativity. I couldn't live without my Roland Juno 106 and my Alpha Juno 2. I also use a Matrix 1000 and a Yamaha 02R expanded with two ADAT cards to connect it to the MOTU 2408 audio interface.

Why did you use a live track as backing?

As I said earlier, we were just messing around having fun sampling stuff that we really loved. We'd been watching a live video of Barry White for the whole of the previous week, which we thought was amazing. So the backing track comes from a 1990 live Barry White concert in Belgium – it's not a bootleg!

How hard was it to find a Barry White soundalike?

It's was *very* hard to find someone who can sing like Barry White! I have to thank Lisa Millet for her help in finding him and the help she gave me with the actual vocal production. The guy we found is called Elroy 'Spoonface' Powell and he's from London.

How did the track get picked up?

We just wanted to give it a try with the track so we pressed up some white labels to give to DJs and pretty soon we found out that it was in every Italian house chart. Then we had to figure out which, out of the many interested labels, was the best deal for us to go with.

What do you never go into the studio without?

Coffee, coffee, coffee... and a lot of good humour.

• *Hamish Mackintosh*

'You See the Trouble With Me' is out now on Eternal. Don't be lured by the Italian pressings that have been cropping up in record shops – they're still the cover version...

Q for the Rack

Waldorf Q virtual analogue synth gets rackmounting makeover

Virtual analogue in a rack – for that authentic PPG Wave sound of yore...

For those of you craving the unique virtual analogue tones of Waldorf's acclaimed Q synth, but for whom yet another keyboard-endowed instrument holds no appeal, the wait is over. The Q Rack crams all the features of its 16-voice, 16-part multitimbral keyboard brother (including no less than 27 knobs for easy to use, real-time control) into a neat desktop unit that occupies 5U of rack space when mounted. And with its bright yellow colour scheme, you're hardly likely to miss this instrument, wherever you opt to use it.

Each of the Q's voices offers three LFOs and three oscillators with classic wave shapes (two of which can use one of two wavetables for recreating that distinctive PPG Wave sound of yesteryear), a comprehensive routing matrix for all modulation sources, a noise generator and a ring modulator for starters. The output from each oscillator is variable between two filters – each capable of low-pass, band-pass, high-pass, notch and comb filter types – allowing the Q Rack to create truly polyphonic chorus or flanger effects.

Speaking of effects, in multi-mode, four of the Q Rack's 16 multitimbral parts retain two simultaneous effects, giving a total of eight FX processors. With a powerful built-in arpeggiator and step-time sequencer to boot, this all adds up to a very serious synth indeed.

Price: £1,199
More from: Arbiter
Tel: 020 8970 1909
Web: www.arbitergroup.co.uk

Slip sliding away...

Philip Rees launch low-cost, multi-function MIDI controller

Most of us would agree that a tactile user interface on hi-tech music-making equipment is a good thing. And though manufacturers are buying into this mindset to a certain extent, much of today's increasingly complicated gear remains distinctly lacking in this department – hence the C16 MIDI Control Unit from Philip Rees.

Get your hands on the C-16 and feel the MIDI...

This multi-preset hardware MIDI controller/editor has 16 sliders, that may be assigned to a wide variety of MIDI control functions. The assignments are held as 100 handy factory presets, these being recalled by target number, displayed on a two-digit LED. Preset 'targets' include GM, XG, GS, AWE and many popular synths, including Roland's JV-1080, the Korg X-series, Oberheim Matrix 1000, and E-mu's Proteus and Orbit.

The C16 generates all MIDI controllers and can control any MIDI slave where controller numbers are assignable. Two MIDI-downloadable target profiles enable the C16 to become fully programmable when used with a computer. So, if you've got a 'slider-less' MIDI rig, you might want to think about getting a C16.

Price: £149
More from: Philip Rees
Tel: 01608 811215
Web: www.philrees.co.uk

FX? We can't hear you...

In the wonderful world of recording, there's little about acoustic panels that excite, yet useful they most certainly are. FX Rentals' Technical Director Frank Oglethorpe was so impressed with the new range of Taytrix modular panels at a recent AES show that he... bought the company? Well, not quite. He immediately ordered 20 in assorted sizes for his company's clients: "Compared to old-style acoustic panels, these are a dream," commented Oglethorpe. "They are incredibly lightweight and can easily be stacked for transporting."

The panels are available for sale or rental and come in three different models: Plexiglass (ideal for vocal booths, enabling vocalists to remain in visual contact with producers), Fabric (with both sides of the panel covered in soft, absorbent material) and Combination (where one side of the panel is fabric and the other is beechwood), enabling different acoustic environments to be easily created.

Prices: **from £239-£347**
More from: **FX Rentals**
Tel: **020 8746 2121**
Web: **www.fxrentals.co.uk**

Construction time again

New studio complex underway in the capital

Taking the studio plunge: (L-R) Francesco Cameli, Tom Schlum and Malcolm Atkin

While speculation is rife about the future of top-flight commercial studios in today's music production climate, work has started on what is reputedly the most ambitious music recording complex to be built in the capital for many years. Ladies and Gentlemen, put your hands together for Sphere Studios. Actually, save your welcome for a while; the new studio isn't set to open its doors to the public until Spring 2001.

In the meantime, here's a taster of what to expect. The new studio (which is being constructed on the site of an old laundry in South West London) will operate as a fully commercial venture, incorporating three main control rooms dedicated to track-laying, stereo mixing and 5.1 surround mixing. There will also be six white rooms: acoustically-built space (to be up and running by September 2000) available for hire to artists and independent producers, plus extensive ISDN facilities and plenty of parking – not forgetting that all-important licensed bar. Now *that* should be enough to get potential clients' creative juices flowing!

The main partners behind Sphere are musician/producer Francesco Cameli and Malcolm Atkin, former general manager of Sir George Martin's Air Lyndhurst facility. The design of the main studios and white rooms is being handled by Munro Associates. Cameli and Atkin, together with Sphere's technical manager Tom Schlum, are currently finalising the technical specification for the three studios, which, we're promised, will all include the latest state-of-the-art equipment.

More from: Sphere Studios
Tel: 020 7964 4550
Web: www.spherestudios.co.uk

in brief

Computer Music

CreamWare's Pulsar card wowed just about everyone who saw it when it was released last year, and the latest issue of *Computer Music* contains a review of not just its stunning sequel – Pulsar II – but also the German company's new PCI PowerSampler. There's also a comprehensive history of computer music-making, an interview with Korg OASYS developer Dan Phillips and a CD full of essential software. Plus, of course, all the usual tutorials and latest reviews.

Read all about the history of computer music making

Future Music

In *Future Music* this month you can find reviews of Yamaha's new SU200 phrase sampler, the E-mu Xtreme Lead-1, Roland's XV-88 and the Gigasampler from Nemesys. Interviewed are Globo and newcomers Broadcast, plus Mike Paradinas and Groove Armada, including a DIY tutorial on how to recreate Groove Armada's classic chilled filter funk sounds. Get it and get funky – for bedroom musos everywhere!

Groove Armada in your bedroom with *FM* this month

WIN! one of TWO Sherman Filterbanks!

Filtering rocks – it's official – and if you don't agree, then you don't know anything. So have a pop at this month's competition and get yourself a Sherman Filterbank, signed by none other than Filterbank designer Herman Gilles himself!

One of the most revered of all filters: the Sherman Filterbank

'Let's face it – filtering is everywhere these days. And given that you can't beat 'em, you'd better join them. And what better way to get into the crazy world of filtering than by winning one – for free!

Answer the two Sherman-related questions (you'll need to do a little research, so check the end of the article for a big hint), and send the answers to us here at *The Mix*. The two lucky winners will be drawn from a hat (or something) and notified of their incredible good fortune in a forthcoming issue. Just make sure all entries are in by 15th September.

So, bring on the questions...

1. The original Sherman Filterbank debuted on this planet in which year?
2. Who guards the store room where the Filterbanks are kept?

To be in the running for one of our exclusive signed Sherman Filterbanks simply jot down the answers to our two Sherman-related questions on a postcard and send it to *Sherman Competition, The Mix*, Future Publishing, Bath, BA1 2BW Don't forget to include your address and phone number so we can contact you if necessary. And if you want to know more about Sherman (nudge, nudge!!), point your browser at www.funky-junk.com.

The Rules

1. Employees of Sherman, Funky Junk or Future Publishing, or their relations are not allowed to enter.
2. One entry per reader. Multiple entries will be disqualified.
3. The editor's decision is final. No correspondence will be entered into.
4. No purchase necessary.

9-BAND GRAPHIC EQ · 32-BIT EFFECTS · 4 BUSES

The best live sound mixer value yet!

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12 mono mic/line channels + 2 stereo line level channels

CFX•16

ALL 3 CFX™ MIXERS INCLUDE:

- True 4-bus design with direct sub outs and L/R assign
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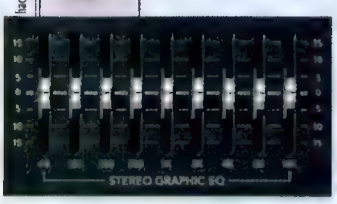
- 32-bit EMAC™ digital effects with 9 reverbs, 4 delays, phaser, chorus, flange; 2 parameter controls + EFX wide spatial expander
- EFX to Monitor control
- Low-noise, phase-accurate 9-band stereo graphic EQ
- 3-band EQ with swept mid (100Hz-8kHZ) on mic/line chs.
- 4-band EQ on stereo line chs.
- 100Hz low-cut filters on all mic/line channels
- Inserts on all mic/line chs.
- Exceptional input level versatility: +50dB mic gain, +30dB line gain and –15dB line attentuation to handle extra-hot signals
- Level set LED on all mic/line chs.
- 2 aux sends with pre/post and internal/external EFX level sends on each channel
- Pan, Mute, PFL solo and bus assign switches on each channel
- Logarithmic-taper 60mm faders
- Ingenious BREAK switch mutes mains during breaks to maintain your channel settings, avoid feedback and prevent unauthorized mic use
- Headphone output with dedicated level control
- Tape/CD inputs with level control and Main Mix Assign + tape outputs
- Balanced/unbalanced TRS and XLR outputs plus...
- Separate XLR subwoofer output with 18dB/oct. 75Hz crossover
- Extra Utility output with level control
- Solid steel chassis
- Sealed rotary controls
- 48V phantom power
- 12V BNC lamp jack



EMAC™ digital effects use 32-bit interna processing to create EFX that rival expensive outboard processors.

CFX•20

16 mic/line channels + 2 stereo line level channels

CFX•12

8 mic/line channels + 2 stereo line level channels

Collect 'em! Trade 'em with your friends! Besides the CFX•16, there's a large family size (CFX•20) and a handy travel size (CFX•12).

Finally, sound reinforcement mixers with integrated effects and graphic EQs that also have exceptional audio quality. Plus more useful features than you can shake a microphone at.

The CFX•16 is equally at home in a church sanctuary, hotel ballroom, school auditorium, club or rehearsal hall. Like all Mackie Designs products, it's built like a tank to take years of load-ins and load-outs. And like all our mixers, the CFX•16 sounds superb with ultra-low noise and exceptionally high headroom. That's because it's the first SR effects mixer that meets Greg Mackie's stringent audio quality standards.

Visit a Mackie dealer and get your hands on the CFX™ Series, the first EFX mixers that don't scream "CHEAP!..." and yet are remarkably inexpensive.

The graphic equalizer is always in the signal path of an EFX mixer. If it's substandard, so is the sound of the mixer. Mackie's CFX Series have expensive, studio-grade graphic equalizers that use multiple summing amps and precision infinite feedback band-pass filters for superior phase and combining properties. Bottom line: The best EFX mixer you ever heard—whether you adjust the graphic EQ or not.

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Tel: 01268 571212
E mail: mackie.uk@rcf-uk.com

Plug-in corner

Sean Vincent's monthly guide to the hottest plug-ins in town...

GakStoar Delta

First up this month is the new LinPlug GakStoar Delta. This is a VST analogue synth plug-in with a great-looking front end. With 24-note poly and a possible 128 programs, the Delta is a serious synth. Features include four aliasing oscillators each with their own waveforms as well as cross-modulation and 'pulse-width modulation'. Two individual filters offering high-pass, low-pass and band-pass can be assigned to the wave along with eight advanced envelopes including the usual ADSR.

Also featured are four LFOs with sine, square, saw and triangle from 0.04 to 16Hz. The Delta also has variable tempo-sync for the LFO as well as full recognition of velocity and aftertouch. It can load patches from the earlier versions of GakStoar including the popular 'Alpha'.

Requirements: VST2.0 capable host such as Cubase 3.7 and a PC that matches host requirements. This must be at least 300MHz. For a mere $75, you can't go wrong. Check out the demo version on this month's cover CD. More from: www.linplug.de.

PSP MixBass

MixBass has been developed by the guys at PSP to help achieve a punchy analogue bass sound. It uses a low frequency compression algorithm to fool the human ear into hearing a dynamic response from a compressed and controlled source. It also features a low frequency harmonics generator that adds character to the sound, particularly with analogue synths and percussion loops. A pseudo-analogue soft-clip function prevents digital distortion while exceeding a level of 0dB with in an increase in volume of around 3dB, without any loss of quality.

MixBass comes with 21 presets covering most tastes, but there's lots of scope for coming up with settings of your own. This plug-in really helps when mixing, especially if you need some extra 'oomph' without overcooking things. It is especially good for beefing up clicky kick drums that would have previously needed some harsh EQ-ing.

Available online for $30, MixBass is compatible with VST, Wavelab and Logic on PC, with a Mac version to follow in September. The demo version is on this month's CD. More from: www.psp-audioware.com.

Prosoniq Voxciter

The people that brought us Timefactory are back – this time with a new vocal processor. Prosoniq's Voxciter is basically a vocal recording/mixing channel. Based on the ever-popular hardware channel strips that have cropped up in recent times, the Voxciter features all the key elements. Gate, compressor, de-esser, EQ, refresher and tube saturation modes are all available. Voxciter is extremely well-specified, featuring access to all the parameters needed to record or restore the perfect vocal. Expect an in-depth look soon, in *The Mix*, but in the meantime check the Prosoniq website for updates: www.prosoniq.com.

SPL De-esser

Also new this month is another Steinberg collaboration, this time with SPL. The SPL De-esser does exactly what it says on the tin: it de-esses. SPL have long been associated with quality processors and this example just goes to show why. You can easily remove unwanted sibilance without harming the rest of the signal. This is the kind of quality you would expect in a pro environment. It works by feeding a phase-inverted version of the offending signal back into the signal path, thereby cancelling out the sssssssssss. It's available in VST or DirectX format for PC or Mac. More from Arbiter on 020 8970 1909 Web: www.arbitergroup.com.

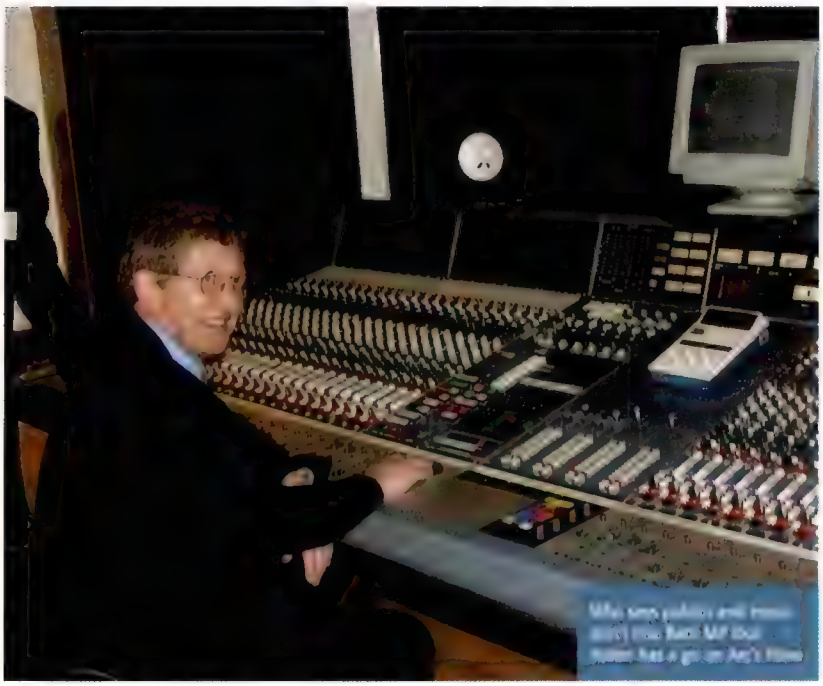
Ooh, 'arc at that!

The role of the residential studio may have changed in recent years, but it hasn't stopped the opening of one of the biggest residential projects in the UK for years. Located just outside Bath, Arc Studio was declared open for business in May and has already seen the likes of The Stranglers through its doors.

Set within four acres of countryside, the Arc facility is certainly well appointed. Designed by Recording Architecture, the live and control rooms feature a Neve V3 console, Pro Tools, a boxful of Neumanns and AKGs, not to mention outboard by Lexicon, Massenburg, SSL and Eventide. And when the work's done, why not take time to lounge around the place – there are three twin rooms and one double for the 'guests', with a choice of menus available from the studio chef.

When studio manager George Allen showed us round at the opening he was pleased to tell us that Arc strives to provide an open and receptive service, striking the balance between technology, environment and value for money. At least we *think* that's what he said as we made a long arm for another tray full of hors d'oeuvres.

More from: **Arc Studio**
Tel: **01225 892222**



Introducing the

Really Nice Compressor

The RNC is a superb stereo compressor at an unbelievable price. With performance and sonic quality matching even the most expensive heavyweight professional models.

"A debut product that is not only great, but oozes personality - stonkingly great performance, believe me its the best £199 you will ever spend. I wouldn't be surprised if many studios of all sizes will soon possess at least one of these little grey wonders"
Steve Evans, The Mix

"This compressor came as a major surprise - it's musical and controlled, without relying on tubes, optoisolators, or other 'magic' components. As a result, there's also a clarity often missing with vintage compressors, which sometimes thicken the sound. At this price you can't go wrong. If the RNC were a car, it would take corners at 120mph, get 60 miles per gallon, and if you slammed into a wall, it would bounce off harmlessly - this box is awesome"
Craig Anderton, EQ Magazine

Available from the following stocking dealers:
Digital Village - West London 0208 992 5592, North London 0208 440 3440, Birmingham 0121 687 4777, Bristol 0117 946 7700, Cambridge 01223 316091, South London 0208 407 8444, East London 0208 597 3587, Southampton 023 8023 3444
Eddie Moors Music - Bournemouth 01202 395135
M Corporation - Nottingham 0115 947 4070, Ringwood 01425 470007
Sound Control Direct - 0800 525260

FMR Audio
www.fmraudio.com

UK Distributor: Tel: 01908 510123 Email: fmr@audioagency.co.uk

audioagency

Knuckle down and win

The Godfather of House wins Lifetime Achievement Award

At the first annual Worldwide Dance Music Awards – DanceStar 2000 – held last month at Alexandra Palace and broadcast on Channel 4, Frankie Knuckles won the Lifetime Achievement Award. Few figures in contemporary music have influenced their respective fields the way that Frankie Knuckles has revolutionised dance music, and he is no stranger to awards. Indeed he won the first-ever Remixer of the Year Grammy in 1997. Yet the influential and innovative producer and ultimate globe-trotting DJ was bowled over by this latest accolade.

"When I first heard about it, I didn't know what to think," Frankie told *The Mix*. "I was taken by surprise, as it was not something I was working towards. The thing about a Lifetime Achievement Award is that it is normally given to people whose careers are behind them – but I'm nowhere near that yet, do you know what I'm saying? I'm still working very hard! I was extremely honoured to receive the award, especially as it reflects the respect and friendships I have forged in the industry throughout the world, but particularly in the UK. It's really, really great – particularly the fact that someone wanted me to have that award."

Indeed the same night and at the same table, his Def Mix counterpart David Morales won the Outstanding Contribution to Dance Music. "But it wasn't a Def Mix night at all. I think it was a refreshing evening for the industry as it opened up a whole new avenue to the public of what is going on in dance music in the world – it gives it a new focus."

Frankie recently finished a month-long DJ tour of the UK after an eight-year absence, which started off at the Southport Weekender and finished off at the Ministry of Sound. "Everywhere was great," he enthused. "It was amazing although it's frightening coming back to the UK after so much time as things in the UK change every five minutes!" he says laughing. "Nothing seems to have a life expectancy beyond five minutes and stylistically the music I play hasn't changed – although technologically it has."

As well as being one of the world's top DJs, Frankie is also an accomplished remixer and producer. Already he has enjoyed the success of two Virgin releases *Beyond the Mix* and *Welcome to the Real World*. He has produced and remixed songs for Luther Vandross, Diana Ross, Mary J Blige, Michael Jackson, Michael Bolton, Janet Jackson, Sounds of Blackness and Toni Braxton. More recently he has been adding his magic to Gabrielle, Co Co Lee & D*Note, Another Level and Johnson. He also produced and remixed his classic 'Tears' with Def Mix stablemate Satoshi Tomiie. But at the moment, this world traveller is cutting back on the remixes to concentrate on his own album, which is set to be released in spring 2001. The first vocal house single, which he has just finished, will be released towards the end of the summer.

"Although I don't want to, I'm cutting back on the travel so that I can spend some quality time on my own in the studio, working on my own stuff rather than somebody else's."

Whether he uses the Def Mix Studio or Quad Recordings, he has no favourite piece of kit "apart from the human voice and a grand piano! Don't get me wrong, I take onboard the advances in technology and the new studio equipment and computers but you can't beat the sound and acoustics of a voice and piano – they're the best instruments." • *Mark Moore*

Frankie is also The Mix's Page 3 star this month

Cashing in on Karaoke

Ready to sell out? Wanna make some 'easy money' in the studio? Then read on...

Karaoke. Chances are the word conjures up images of musical tackiness and drunken off-key warbling. But there's no denying it's big business, and now you too could have a slice of that pie, thanks to Northamptonshire studio owner David Tobin.

The entrepreneurial Tobin has set up another company, Wow And Flutter, specifically to produce Karaoke albums for distribution and is offering studios and music producers a constant source of income by producing Karaoke CDs on his company's behalf.

The deal is this: studios receive £100 per track, assuming that they are able to produce 15 tracks per month – £1,500 gross per month, in other words. And if the studio or music producer has time to complete more than 15 tracks within the same month, then Wow And Flutter are more than happy to buy those too. Wow And Flutter also supply the original tracks to cut down costs, but not the cost of hiring any required musicians or vocalists: "This may seem expensive," commented Tobin, "but if they prepare the songs in advance and then put on any live parts in one or two sessions, it is pretty cost-effective."

According to Tobin, there's plenty of work to go round: "The problem is finding good enough people, rather than turning people away. For the right studios, we can supply enough work to keep them as busy as they want to be for the forseeable future."

So, what are you waiting for? Pass the mic...

More from: Wow And Flutter
Tel: 01933 314040

Sparky's magic modular

New virtual modular system for Mac from TC Works

A virtual MIDI keyboard – handy for those awkward moments when no 'real-world' ones are at hand

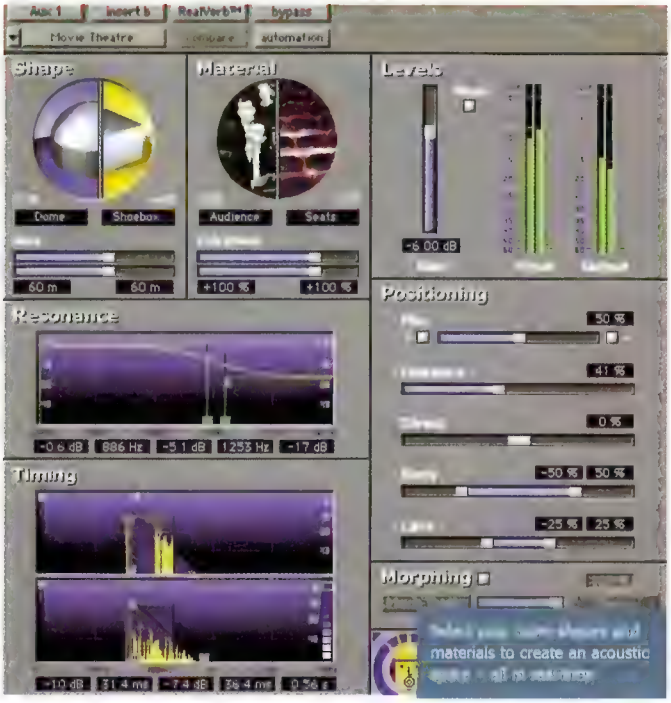
The TCA amplifier module – without this, you won't hear anything!

Price: £69
(included free with TC Works Spark)
More from: Arbiter
Tel: 020 8970 1909
Web: www.arbitergroup.com

Recreate yesteryear's classic sequences and arpeggios with the TCSEQ step sequencer

Mixing loud and clear

A stereo reverb plug-in for Pro Tools and MOTU users, and two 5.1 encoder software packages from Kind of Loud



Kind of Loud Technologies have announced a new stereo reverb plug-in. RealVerb is available for Digidesign's TDM and RTAS platforms, and MAS for Mark of the Unicorn users. Based on RealVerb 5.1, the world's first 5.1 surround reverb, RealVerb uses complex spatial and spectrum reverberation technology to accurately model an acoustic space by selecting and blending from a palette of room shapes and materials – in real-time, with no distortion, pops or zipper noise either.

On a different musical note, Pro Tools users have had to rely on costly dedicated hardware to encode their 5.1 mixes; to date there are few software encoders and none for Pro Tools – until now. Kind of Loud have two 5.1 encoder software packages for Digidesign's Pro Tools in the pipeline. SmartCode Pro will be available in both Dolby Digital and DTS versions, and is an AudioSuite program that allows Pro Tools users to preview 5.1 mixes created by Pro Tools and the SmartPan Pro plug-in, then encode and decode the mix to create a 6-channel surround master.

Prices: **RealVerb TDM £588; RealVerb RTAS and MAS MOTU £259**
More from: **Unity Audio**
Tel: **01440 785843**
Web: **www.unityaudio.co.uk**

New FX for Hyperprism

US-based Arboretum Systems have upgraded both their plug-in and standalone editions of the Hyperprism FX pack (reviewed in *The Mix* 74) to include a tasty new selection of effects.

Granulator chops up audio into lots of tiny pieces and rearranges it in interesting ways. The user controls the grain size and randomisation, as well as the speed and density of the spread – like a sonic food processor, in effect.

Dubbed a 'modulated filtering' effect, HyperPhaser has six separate resonant filters, configurable as either band-pass or band reject, all under LFO control.

As implied by its name, the Formant Pitch Shifter permits real-time formant shifting, and can also create some very unusual effects by allowing the user to virtually change the size of the singer's head and throat – a lot cheaper than plastic surgery, that's for sure!

The Harmonic Exciter targets a specific frequency range, synthesizing new harmonics from that range to create a vibrant high end – useful for adding sparkle to individual instruments or entire mixes.

The Bass Maximizer unsurprisingly provides dynamic control over lower frequencies, adding punch and the perception of deeper bass.

Finally, Tube/Tape Saturation simulates tube overload and, of course, tape saturation.

Collectively, these bring the total number of effects now available in Hyperprism to 43. Little wonder, then, that it has proved a hit with top recording artists, sound designers and computer game and multimedia developers alike. Arboretum are thoughtfully making the four plug-in sets of the Plug-in Pack edition of Hyperprism 2.5 available separately as single, low-cost bundles, though UK pricing has still to be confirmed.

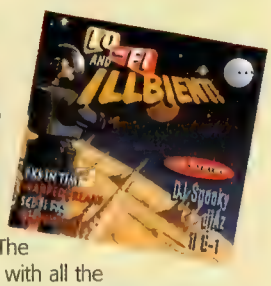
Price: standalone version £276, individual plug-ins £166; upgrade pack £83
More from: Unity Audio
Tel: 01440 785843
Web: www.unityaudio.co.uk

With the six latest additions, the total number of FX in Hyperprism now reaches 43

Sounds on tap

the latest sample CDs reviewed by *Michael Stand* and *Alan Branch*

Lo-Fi And Illbient



Here's a gritty little gem among the abundance of sonically turbo-charged, clinically dry sample CDs that seem to dictate proceedings at the moment. So let's see what's on offer here (from DJ Spooky, il B-1, and djAz – nope, they don't ring much of a bell for me either): a huge clutch of lo-fi grooves and textures to work your magic with. The grooves on offer are pretty damn cool; with all the composite trip hopp-y parts you'll need for lo-fi shenanigans. It's a slight shame that some of the parts don't appear to be recorded very well – but that aside, this is a useful collection of gritty grooves.

The Drummers Of Motown

There's a damn hefty credit list on this CD. The Jackson 5, Marvin Gaye, and The Temptations groove is obvious from the moment this hits the tray. Ya know, all the classics that came outta the Tamla Motown label – 'My Girl', 'Tears Of A Clown', 'I Heard It Through The Grapevine', and the list goes on. The main movers behind the drumming groove that drove the whole thing were Richard Allen, Uriel Jones, and Jack Ashford, and what the trio admirably demonstrate on this offering is that they've still got that classic groove in their hearts. This is a distinctive and seriously tight compilation of very cool retro grooves. If you're in any way influenced by the Motown sound, then this is a must.

The Funk Master

The Master in question here is John Jab 'O Starks, who played on a clutch of James Brown classics, including 'Sex Machine' and 'Funky Good Time'. So when it comes to the funk, you don't mess with this guy's groove. For this expedition he's hauled in some pals, including guitarists Chuck Anthony and Kjell Segebrant as well as producer mogul Bil Bryant. The loops and grooves are recorded to perfection, and the tempo mapping and key info are all in place; bliss! A fine collection of grooves.

Lo-Fi And Illbient, The Drummers of Motown and The Funk Master are available for £59.95 each from Time+Space.
Tel: 01837 55200 Web: www.timespace.com

Platinum 24 drums

Wizoo's 24-bit drum library for Steinberg's LM4 is legendary. Now those sounds are available to Akai S-1000 (and compatible) samplers via the new *Platinum 24* series of sample CDs. *Platinum 24: Acoustic Drums* offers 40 drum kits recorded digitally in 24-bit format with up to 20 dynamic levels per instrument, which means more flexible control for drum programmers. *Platinum 24 Electric Drums*, meanwhile, captures the magic of Roland's classic TR-808 and TR-909. Again the recording is 24-bit layered with a wealth of sound variations and some effects processing (including 480L kits) thrown in for good measure.

Available for (US) $99.95, directly from www.wizoo.com

PC News

by *Adam Fuest*, *Oz Owen* and *Adam Crute*

Terratec ClockWork

All of this digital gear that we have kicking around these days doesn't half start to cause bother when trying to interconnect it all – lose digital word synchronisation at any point in the system and your crystal-clear signal is reduced to just so many ones and noughts. What you need is a master Wordclock generator, and Terratec think that they're just the chaps to provide you with one. Any Terratec EWS card that sports their EWS Connect connectors can be hooked up to the new Terratec ClockWork card to give sample accurate, low jitter wordclock sync between the EWS card and the outside world. Up to four EWS cards can be made slaves to the ClockWork's master. *(AC)*

64-bits are here

Just when you thought it was safe to lash out your hard-earned spondoolies on the proverbial 1GHz Pentium or AMD monster, there is a distant rumbling in the high street jungle, and amidst the howling of dying wallets and the crackling of self-combusting credit cards we hear the word 'Itanium' first spoken. Itanium, formally known as 'Merced', is Intel's first sortie into 64-bit computing.

64-bit CPUs are not revolutionary in themselves. Sun have been producing them for some time, but they have been used for strictly high-end industrial applications, and as you can imagine, they don't come cheap. So, what's the big deal? Well, in crude terms, an 800 MHz 64-bit processor will chew through twice as much data as an 800 MHz Pentium. We are not talking clock speeds here – we are talking about serious changes in the performance of PCs. Your current 32-bit processors are working from parameters defined nearly 14 years ago with a maximum addressable memory of four Gigabytes. A 64-bit processor can address a massive 16 Terabytes.

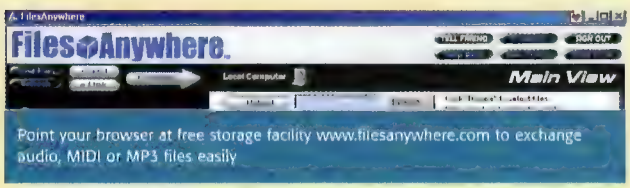
Not only is it extremely powerful, it is architecturally different to today's RISC-based processors, featuring Explicit Parallel Instruction Computing (EPIC), which allows the CPU to make calculations based on prediction (aha – guesswork! Now there's trouble!).

Intel are not alone in their pursuit of the 64-bit CPU. AMD have their alternative, named the Sledge Hammer. Intel claim they will have their first units shipping by the end of September – no doubt at the high-end of the market to start with, but Intel have been very open with their research and as a result 64-bit ports of Windows 2000 and Linux will be available with little delay.

It may seem pie-in-the-sky at the moment, but with the battle between Intel and AMD raging we are sure there will be desktop PCs featuring 64-bit CPU by 2001. *(AF)*

Logic on the horizon

Emagic have intimated that the long-awaited XS24 sampler will be available by the time you read this, along with version 4.3 of Logic. As to the whereabouts of the much-touted Logic Audio 4.5, the predictions are all for late July, although many of the Audio Engine updates will be available in 4.3. Emagic have also announced that the Unitor8 MK11, AMT8 and MT4 have now got full USB support for both Windows and Mac Platforms. *(AF)*



Point your browser at free storage facility www.filesanywhere.com to exchange audio, MIDI or MP3 files easily

Put it here!

Something of interest to you Netties out there is F.A.W or Files Any Where (www.filesanywhere.com) This is one of those net storage facilities with a couple of extra perks. For starters, you get a cool 50 Mb of internet storage for free (at the moment, but these things can always change) and additional storage can be purchased. This storage is secure and safe from prying eyes – or at least as safe as anything can be on the net.

The great thing about FAW is that files can be easily transferred between up to four accounts instantly. Imagine this scenario. You have a working partner, or partners, at different locations and you are exchanging Audio, MP3 and MIDI files too large for each others' mailboxes. You have a problem! However, if you upload to your FAW you can simply send the files to your co-workers via FAW, they then receive an automatic notice from their FAW account telling them they have received files and can then download at their leisure late at night when net traffic is down. With up to 2Gb available for any account, this sort of facility is a real godsend and, if you are lucky enough to have an ISDN connection, has got to be considered a net essential. *(AF)*

A class act: new PCI card from Lynx Studio Technology. Look out for a review next month in *The Mix*

The Lynx effect?

US-based Lynx Studio Technology have a new, high-performance PCI soundcard that they're distributing through HHB. They claim the LynxONE is a bit of a class act, and a glance at the stats backs this up – 24-bit analogue I/Os on balanced XLRs with a 103dB dynamic range, digital I/O also on XLR with support for AES/EBU and S/PDIF formats at the now-obligatory 24-bit/96kHz.

There are also two low-latency MIDI ports supporting up to 32 MIDI channels, but for more accurate sync'ing, one can be set exclusively to handle MTC duties. And we'll be taking a much closer look at one in *The Mix* next month... *(OO)*

Price: **£582 (£469 for a limited period)**
More from: **HHB Communications**
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Web: **www.hhb.co.uk**

Mac News

by Lewis Brangwyn

New chips from IBM

Speedy speedy: the G3 and G4 fight for the title

IBM has announced a new generation of PowerPC processors based on the 750 (G3) chip design. [illegible] Motorola's G4 which is now the standard processor [illegible] in its latest G4 Macs. IBM's new offerings, the 750CX and 750 [illegible] are expected to achieve speeds of up to 700MHz and will consume less power, making them ideal candidates for future PowerBooks or iBooks. Another significant feature of the new chips is the development of an on-board cache. The only snag is that Apple have not announced any plans to start using them as yet…

Apple gets Real

Smart: Real Audio in Quick Time

Apple and RealNetworks have announced a deal which will bring the companies' streaming technologies together. Real is now licensing QuickTime technology from Apple and Real's RealServer 8 will now support the delivery of QuickTime-based content to Apple's QuickTime players. A preview version of RealServer 8 and examples of the player in action can be found at www.realnetworks.com.

Software on-line

[illegible] Mixman Studio Mac digital audio recording and re-mixing software has been released as a 'lite' version in the form of Studio Mac DL and is now available as an on-line download from www.mixman.com for $19.95. The Studio DL version comprises three components: Remixing Studio, Recording Studio and Export Control Room. Real-time functions including remixing, panning and tempo changes are supported by the program, which can read TRK (Mixman's Track File format), WAV and AIFF files. The Export Control Room will cope with AIFF, WAV, MP3 and G2 RealAudio formats. This package offers a decent level of functionality compared to the 'all frills' version selling for $79.95. Arguably, the most [illegible] omission, however, is the lack of external MIDI compatibility, and with the boxed version you also get more than 550 [illegible] sounds. Check out www.[illegible]mak.com for the full story.

Patches to post

BitHeadz have launched a service that enables users of its Retro AS-1 software to swap AS-1 patches quickly and easily via the web. Logging onto www.bitheadz.com/PatchPost/main.html and entering the name 'bitheadz2' and the password 'wacom' when prompted will enable you to upload your own custom patches or download other people's. Remember that AS-1 version 2 patches are not compatible with Retro AS-1 1.x, but version 2 users can use the File Typer utility in AS-1 to make the patches accessible to the software. If you're uploading patches, bear in mind that the Wintel world might need a file extension to ensure that their PCs recognise it: use .ras if that is the case. So, if basses, techno percussion and wind instruments are your thing, be sure to get a copy of Fetch or Anarchie FTP clients (downloadable from www.download.com) and visit ftp://ftp.bitheadz.com

Unity update

It's only a few weeks since BitHeadz started shipping their Unity DS-1 2.0 digital sampler, but an updater is already on the scene. The version 2.01 updater adds additional support for the G4 processor's Velocity engine and fixes some minor bugs. Changes from version 2.0 include a standard MIDI-file player (Unity DS-1 Player), improved factory sound set compatibility with the G4, and the ability to read version 1.x-linked files correctly. Registered users of version 1.x can upgrade to 2.0 for $149. The full version is $449. Get the 2.01 updater from www.bitheadz.com

BitHeadz users can swap patches on the net

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Get off my land!
Are DJs taking over the business of music production? They've got the profile, but have they got the studio prowess?

Retro rage
What's with all the fascination with vintage gear? Are manufacturers cutting too many corners when designing new kit, so many that we're forced to look to the old skool?

Napster
Napster – good or evil? Do you download MP3s, and if so, are you helping to kill off the record industry? Take it away, kids

Write to us:
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Or email us:
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Axe the axe

Regarding Barry White and his acoustic guitar test (issues 75-77), I can't quite understand what all the fuss is about. The acoustic test? It's only been valid since the dawn of the guitar. Admittedly, that's a while, but music was still around before it. Try playing a ninth-century monks' chant on an acoustic. Or an African talking drum piece. The main melody of Beethoven's 'Moonlight Sonata' may be an acoustic possibility but the soaring chords of say, 'Nimrod' are only going to be an approximation on the guitar, and even then, not a good one.

Why are we so fixated on the guitar? Don't get me wrong, I love guitar and play it myself, but this whole debate seems to assume that there is no music except Euro/American pop and that no music existed before the late 20th century.

Yo! Johann! Drop the lute or the acoustic gets it

I do all sorts of music these days and I utilise whatever instrument I feel is suitable. If that's a guitar then great, but often it isn't. So what? What would we do for an acid test if we lived before the guitar? Maybe the lute test? And before that?

Music is always evolving. Beethoven was slated for using these newfangled nasty piano things in much the same way people talk of samplers today or synths in the '80s. If you listen to all the music available, and not just what is easily available, you'll find a great deal of fantastic music that would be ruined by acoustic guitar, if it could be played at all. That applies throughout history and geography.

Most music is – by its nature – uncommercial and therefore, hard to find. If you choose not to listen to it that's fine, but if you base arguments around assumptions about music you have not heard (or perhaps even heard of) then you are bound to come unstuck. Narrow horizons breed narrow views.

Henry, Bedford

I think you are taking the concept of the 'acoustic guitar test' a little too literally, H, although we agree on the basic premise: great music is not necessarily based on a memorable melody – whether it's a Gregorian chant or Leftfield's latest masterpiece. Next!

Andrea Robinson

There *is* a future

Regarding Nick Barron's *Letter of the Month* in issue 77, although I agree with Nick in some respects, I would like to point out a few things that I believe. Firstly, to have a profitable life in the music industry is incredibly hard, or so I'm told, especially in sound engineering. I know somebody who owns a digital 24-track studio, and although he works at it pretty much full-time, he is by no means really rich. The only way I believe you can have a really profitable life in sound engineering is to work with big-name bands, who can pay big money. I'm guessing there aren't too many of these jobs available, and once someone does get in, they don't want to change jobs for a while!

As for MP3s, although I have downloaded them, I do not believe that in the foreseeable future they will take over the record industry. This is for many reasons. The illegal MP3 sites are usually pretty awful, with banners

Is MP3 going to kill off the record industry?

on every centimetre before you have even loaded the page, and the authorities are slowly catching the sites, and closing then down... well some of them, anyway.

If it came to a choice between paying for MP3s or a CD, I think most people would choose the CD. There is something nice about selecting a CD from your rack, going to your CD player, and inserting it, while you sit back and click the remote. This is such a well-known, and probably enjoyed, activity, that I do not think it will die away – not yet.

I guess MP3s could be sold for less than a CD, due to the CD's packaging costs and transportation, but people will always want the sleeve art, and the actual physical CD, in my opinion. MP3s, on the other hand, are useful for bands or groups in the early stages who can get their tracks heard in far-away places.

As for the idea that sound engineers might not be needed in the future, I believe there will always be room for professional recording, in a professional studio, no matter what the end product is mastered to.

Chris Kendrick, by email

letter of the month

Can't stop the rock

I've been reading *The Mix* for two-and-a-half years. I confess that it's my main source of inspiration as a self-made home-based producer (thank you for the studio tips!). My main interest is in the extreme side of music, which I love and play. Despite this, I had my first experiences in a pro studio producing dance music, and I did some (unlucky) tunes with a very underground dance label.

The fact is that nobody gives you the opportunity and the money to work on certain styles that are considered crap by the most of the recording industry.

Anyway I loved my year in the dance world, (perhaps not my last) and had the chance to put my filthy hands on a mixer, mess around on a sampler and an EQ, and crash Cubase several times.

Month by month I've saved my lire and built up my own home studio, and now it's valued at around £3,000 (UK pounds). I've noticed that many underground bands record in very well-specified studios, spending around £1,500 or more a pop, with very shite results.

The engineers in those highbrow facilities have never heard anything harder than Celine Dion played loud! They think it's just noise, and that everyone is able to record noise. The fact is that recording metal, industrial or other 'noisy' genres of music is as difficult as recording pop.

I work in a 3 x 2 metre room and put my amps and singer in a 1.5 square metre room with the walls covered with sheets. It may sound strange to you, but I think I improve day by day – I'll be the poor man's Bob Rock, even if I have a Mackie CR 1604 instead of a D8B, a dbx 266XL instead of a JMVC1Q and a Shure Beta 58 instead of a Neumann U87. It's just the vibe and love for the music that really matters.

So please, all you rich producers, if someone asks you to record metal just say: 'No, I don't know anything about that'. And give 'em my phone number.

Mirko Nosari, Mantova, Italy

You've got heart, Mirko. Stick to your guns and you'll deserve to go far (and get that D8B one day). And if any budding Nine Inch Nails', Korns or Slipknots out there want to get in touch with Mirko, drop us a line at The Mix and we'll pass it on.

Andrea Robinson

To rock fans they're Pantera, to recording snobs they and their ilk are pants...

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In this month's issue...

The Cream of the crop

With the launch of the Pulsar, CreamWare announced their arrival as a major soundcard player. We've got reviews of not only the next generation Pulsar, but also the potentially fabulous new PowerSampler

Get Back!

It may have existed as a concept for only a couple of decades, but the history of computer making is still a tale worth telling. We look back at the past masters...

www.computermusic.co.uk

I share your fondness for my CD collection, but your sentiments echo those of vinyl aficionados in the '80s who said that LPs would never die, for those very same reasons that you are now citing. The next generation of music fans will grow up with DVD Audio, the internet, MP3 (and whatever new, better-quality format is to follow it) and I guarantee those sentiments will go out the window.

As for having a profitable life in any profession related to the music industry, be it as a musician, producer, engineer, DJ, label owner or whatever – of course, you have to be talented, lucky, persistent and, as I said last month, adaptable (not necessarily in that order). But the very reason the 'biz is so competitive is that the rewards are so high – not the least of which is the fact that you get to spend your time immersed in what we all love best: music. Worth the gamble?

Andrea Robinson

Wooden ears

I'm trying to find a good use for all this new technology, and God knows I don't see much use in recording at 96kHz or 24-bits. If a tune doesn't sound good at CD quality, it never will.

I thought maybe labels could start manufacturing DVDs that contain separate tracks of a song – vocals, the drum track and so on. That way DJs will have more to play with. Imagine what you could do if you could filter only the drums, or strip away the vocal. It shouldn't be that difficult to do – there's enough space on DVDs for all that info and to make the DVD play the tracks in sync. Well, isn't that what surround is?

Have a go Roland/Yamaha/whoever. Just don't forget to send me the recorder/player after you invent them.

Danny, Belgium

You can't see much use in recording at 96kHz or 24-bit? If everyone thought like that we'd still be shelling out our hard-earned on wax cylinders, Danny m'lad!

And while it's true that I'd rather listen to some old Motown classics on a crusty old C90 Super-Ferric cassette tape than Jean-Michel Jarre recorded at the finest 192kHz/256-bit resolution, good audio quality does make a difference. It does depend on the music style though – obviously a classical recording will reap the benefits of high resolution recordings more than, say, a live recording of Napalm Death.

Suppose you recorded the composite parts of a track two different ways – first at 44.1kHz/16-bit (CD quality) and then at 96kHz/24-bit (DVD quality). By the time you've done all your normalising and compressing and added all your reverbs, choruses and whatever else to the signal, it will have degraded to a certain extent.

But... if you start off with a much cleaner signal in the first place – DVD quality in fact – the amount of degradation will affect the finished result less when it's all finally mastered down to CD quality. That's why recording at the highest resolution possible is a good idea. To put it into visual terms, think... 'VHS'. Now, think.... 'DVD'. Any clearer?

As for using the DVD to separate different parts of a tune – I can't see it catching on. Don't get me wrong, it's a good idea, but can you imagine Sony or Time Warner agreeing to putting out Michael Jackson's or Madonna's vocals isolated on any format? I know the major record companies all have hearts of gold – ahem – but letting loose this planet's growing army of samplists on the building blocks of big selling tunes... well, I think you see my point.

Oz Owen

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March issue 72

Korg D16: We test the pocket-sized 16-track digital studio
The science of perfect monitor placement
Pro Tools tips: getting started with Digi 001
Antares Mic Modeler: one plug in, 37 classic mics
Andy Gill: the final recordings of Michael Hutchence
Samples: Andy Gill funked-up industrial loops plus space-age sounds from d'n'b guru Matrix

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Yamaha A5000 and A4000: hands on sampling is back with a vengeance
King of the jingle: trade secrets from ad theme maestro Tot Taylor
Wavelab 3: Steinberg's audio editor revamped
On test: Manley Massive Passive EQ, AKG C3000B mic, Synchro Arts VocALign plug-in, ATC SCM20A monitors
Samples: live dance loops from Death in Vegas drummer Simon Hanson

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Tristin Norwell on producing the latest Embrace album *Drawn from Memory*
Behringer Tube Composer: the new valve-driven compressor on test
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Yamaha MSP10 active nearfields
Samples: Coldcut's *Choice Cuts* collection of killer sounds and loops

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Special filtering issue!
Sherman QMF: the most extreme filter on the planet
Filter round up: we test a dozen of the best hardware and software filters
D.I.Y.: Build your own filter for £44
On test: Roland VSR-880, AMS Neve VX Rack, Yamaha D24, SPL Channel One
Samples: Exclusive sounds from filtered funksters Kojak

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Roland DS-90A: the dawn of speaker modelling
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Role reversal: Wave's Maximiser plug-in goes hardware
Exclusive samples from Jah Wobble and Amon Tobin: breaks, loops, sounds and vocals

Midsummer issue 77

Remix Special! Insider tips from 14 of the world's HOTTEST remixers
Remix competition: Win a remix deal and have your track released on vinyl
Roland VP-9000 : the revolutionary new sampler is here
Plus: MOTU Digital Performer, Drawmer 1969, Bomb Factory, Korg MS2000, TC Voice Tools
On CD: 50 exclusive samples from remix maestro Paul James

Who tests the gear

Our team of equipment reviewers are all audio industry professionals, experts in their chosen fields – engineers, producers, remixers, musicians and software specialists. This means that you can trust the opinions expressed in our reviews.

How the gear is tested

Wherever possible, the gear we test is used in actual sessions. Indeed, some of the biggest-selling records this year will have acted as testbeds for our reviewers. We believe that to truly evaluate kit properly, it needs to be tested in studio conditions – not a dark room!

Impartiality

Reviews in **THE MiX** are in no way biased towards certain manufacturers. We will deliver an impartial verdict on a product whether or not a manufacturer advertises in this magazine. Our first duty is to you, the reader, and our goal is to give you the best possible advice on buying equipment. We will not hesitate to expose sub-standard equipment.

THE MiX EDITOR'S CHOICE

Products that are judged to be outstanding by our reviewers are awarded the 'Editor's Choice' tag. In a standard review, this means that the product offers exceptional performance for the price it retails for. In group tests, there may be two awards – 'Best Performance' and 'Best Value'. The 'Best Performance' award will go to the product that offers the best performance irrespective of price, while the 'Best Value' award will go to the product that offers the best price/performance ratio.

The Mix reviews team

Alan Branch
Producer/engineer/remixer and part of London's famed On-U-Sound production team, Alan's recent credits include Primal Scream's *Exterminator* album and a heavy-duty remix for Trent Reznor's Nine Inch Nails.

Adam Crute
'Mac fan' Adam manages *The Mix*'s in-house recording studio and masters our cover CD every month. He refuses to let the US Justice Department's decision to split Microsoft in half divide his platform loyalties.

Trevor Curwen
Engineer/producer Trev was the mixmeister behind Portishead's seminal *Portishead* album, no less. Never one for resting on his northern laurels, he's currently working with a Nashville-based singer/songwriter.

Steve Evans
A Bath-based freelance engineer, producer and songwriter, Steve learned his craft both on the road and in his own 16-track commercial studio. His most recent project was a remix of M's 'Pop Muzik'.

Adam Fuest
His production credentials take in film soundtracks and acts such as Drugstore and indie band Astrohound. Adam is based 2,500 feet up in the Brecon Beacons, where he runs his own Twin Peaks residential studio.

David Harrow
'Well-travelled' and 'busy' best describes producer/keyboard player David. As James Hardway, he's just finished recording a new drum 'n' bass album in Cuba and Jamaica; US TV appearances to follow. Nice.

Jon Musgrave
A house engineer at London's Roundhouse studios, Jon's diverse credits include Culture Club, Beverley Knight and Mercury Rev. He recently engineered the Mike Spencer remix of Queen/Bowie's 'Under Pressure'.

Tim Oliver
Tim began his career in 'Madchester' where he produced early demos for The Stone Roses. He went on to notch up credits with Gene, M-People, New Order, The Happy Mondays and, most currently, Indigo Girls.

Seb Pecchia
Former Real World house engineer Seb's been busy playing foreman on his new studio building site near Bath, spending a fortune on new gear and deciding which console to buy. He's just mastered Browser's debut single.

Sean Vincent
Such has been Sean's success since his tape-op days at Matrix studios that today he's considering setting up an independent label, as well as re-fitting his own studio. Mastering and editing helps kill any spare time.

reviews

It's back to the old skool this month with a look at Universal Audio's remake of the classic 1176LN compressor. Plus: Creamware's Pulsar card gets an upgrade, hard disk recording from Fostex, serious miking from Brauner and AKG, and more...

Universal Audio 1176LN

Reissued compressor

Price £2,344

For Great sound › Reissue stays true to the original › Easy to operate

Against Expensive compared to the dollar price in the US

Verdict Compression with character

Some aspects of pro audio change so quickly that it's hard to keep abreast of things. Other areas are just the opposite. Certain microphone, EQ, mic pre and compressor designs were so 'right' in the first place that they are still in demand today. Many of these vintage items, universally regarded as classics of their genre, have inevitably spawned copies or reissues.

As the finite supply of original units available in good working order fails to satisfy the ever-increasing demand for them, used prices rise accordingly. Then some enterprising soul steps in to fill the gap and manufacture a new unit closely based on, or identical to, the original specifications.

Sometimes it may be the original manufacturer who reissues a new version of one of their old favourites – as is the case with the AKG C12VR microphone and the recent, limited-edition Focusrite ISA110 mic/pre-EQ. In other cases, third-party manufacturers with no connection to the original makers have designed new units based on the old classics, even to the extent of basing a whole product line on circuitry found in Pultec EQs and Fairchild limiters – not that there's anything wrong with that.

In the case of the Universal Audio 1176LN Limiting Amplifier, the newly-built units have a unique and solid connection to the originals – after all, they are being produced by the sons of the man who was actively involved in the design of the original way back in the 1960s.

Bill Putnam, founder of the Universal Recording Corporation in Chicago, was the man responsible for the design of the original 1176. Bill was also involved in the design of both audio equipment and studios, as well as production and engineering. Among many others he recorded in his career were such household names as Duke Ellington, Nat King Cole and Frank Sinatra. He also pioneered the first use of artificial reverb on a recording.

The 1176 was designed in 1966, and at that time was a major breakthrough in limiter technology, being the first true peak limiter with all-transistor technology, although the unit had actually evolved from the Universal Audio 175 and 176 valve limiters, and the 1108 preamplifier.

It's definitely an understatement to say that the 1176 became very popular. It's still found in virtually every top-flight studio worldwide, and it's been estimated that between 12,000 to 15,000 were manufactured from 1967 onwards, undergoing at least 13 revisions in its lifetime. Probably the most major modification in the series was the introduction of the 1176LN model with circuit revisions to reduce noise.

1176s are variously known as either 'Blackface' or 'Silverface', depending on front panel appearance, and usually have a letter denoting the revision. General opinion holds the Blackface D and E models in high regard, and it is on these that the new model is based.

The idea to build the new units came about when two of Bill Putnam's sons, Jim and Bill, were clearing out their late father's workshop and discovered his old design notebook containing much technical information accrued over the years. The original Universal Audio name was still available for use, as were the original product names, so the new Universal Audio company was born with the intention of manufacturing authentic reproductions of original classic analogue audio equipment. The 1176 is the first reproduction in the Universal Audio Classics series.

CD info

track 03
The classic processor at work on drum loops, piano and that good ol' Les Paul/Marshall combo

Overview

Meticulous attention to detail in the sourcing of components, not to mention hand-wiring and testing of these new units, has ensured that, electronically, they are as close as possible to the originals. Physically, they are almost identical.

The main difference is to be found on the back panel, where balanced XLR input and output sockets now co-exist with the terminal strip, as found on original models. As in the original, that terminal strip, as well as providing input and output connections, has terminals for the connection of a remote VU meter.

words
Trevor Curwen
photography
Gavin Roberts

The sound that's spanned five decades: engineers still love the 1176

The only other connector on the back panel is an RCA phono socket for connecting two units together for stereo operation. Mains power arrives via a captive lead, and there's a switch to configure the unit for either 115 or 230 volt operation.

The front panel of the 2U unit couldn't be much simpler, with knobs for input, output, attack and release, an array of four buttons to select the ratio, and another bank of four button for on/off operation and various meter functions. Of these four buttons, the bottom one serves merely to turn the unit off; any of the other three turn it on.

With the top (GR) button pressed, the VU meter shows the amount of gain reduction in dB, and the other two buttons can be pressed to display the output level with a meter reading of 0 corresponding to an output level of +4 or +8dBm, depending on which of the two is engaged.

Four compression ratios are available. These are 20:1, 12:1, 8:1 and 4:1, and although the mechanical operation of the buttons means that the currently engaged button pops out when you push another one in, you can still push several in together allowing various combinations to be engaged for special effects.

The 1176 uses a fixed threshold level, and employs the input level rotary control to determine the relative threshold as well as the total amount of gain reduction. Rotating the control clockwise increases the amount of gain reduction. Once the correct amount of gain reduction has been set, the output level can be adjusted by the output control. Both of these knobs feature a large skirt with a very visible white line, the position of which can be easily marked with chinagraph or masking tape on the front panel for handy visual recall of specific settings.

At its fully anti-clockwise position, the attack control has a switch which disables compression – the signal is still affected with the 1176 circuitry acting as an amplifier, but it's not compressed, a condition which some engineers use for its sonic advantage. When turning the control past the switch point, the attack time is continually adjustable between 20 and 800 microseconds, with the fastest attack time being in the fully clockwise position.

Likewise with the release knob; the fastest release time is available in the fully clockwise position, with the adjustment being continuously variable between 50 and 1,100ms. When two units are connected together for stereo operation, their attack and release controls will interact, with the fastest attack time being double that of a single unit – 40 microseconds, in other words.

In use

There is little point in reissuing a piece of equipment like the 1176 if the new units do not sound and operate like the originals. But as anyone who has used an 1176 knows, the original units can sound slightly different from each other, depending on which particular revision they are, ageing of the components, calibration and so on.

specifications

Connections
XLRs and Jones Barrier terminals

Compression ratios
4:1, 8:1, 12:1, 20:1

Attack time
20 microseconds to 800 microseconds

Release time
50ms to 1.1sec

Frequency response
20Hz to 20kHz +1dB

Gain
50dB

Signal to noise ratio
>70dB @ +10dBm

Dimensions
2U 19" rack-mounting

Weight
11lbs

Stereo linking
2 x 1176 with 1176SA interconnect cable

Technical history

Designed in 1966, using recently developed FETs (Field Effect Transistors) in its gain reduction stages, the original 1176 had a Class A line level amplifier in the output stage, with an output transformer that Bill Putnam had taken a long time to perfect and was critical in the operation. The new version has remained faithful to this design and is based on the D and E revisions, which were the final refinements of the design that utilised the Class A configuration. The 1176 went through many revisions in its history, so perhaps a brief summary is in order...

The first incarnations of the 1176 were silver with blue paintwork. The very first version, dating from 1967, is known as revision A, but this design was soon changed to revision AB by using different resistor values in the signal preamp stages to improve stability, as well as noise. In revision B, FETs in the signal preamp were replaced with a bipolar transistor.

In 1970 the first of the models with the black front panel arrived. Revision C was the first 1176LN with the low noise circuitry added in the signal preamp. This circuitry was built in a module encased in epoxy to keep the details of the circuit secret as a patent was being applied for. Revision D saw the LN circuitry module discarded in favour of the incorporation of the LN circuitry into the main board. 220 volt operation was added with a power transformer change in revision E, with a switch added to change between voltages. 1973 saw the launch of revision F, with a major change in the output amplifier where the original class A design was replaced by a push-pull configuration providing more output drive. Further changes were made in revision G, the last of the 'Blackface' models, with a differential amplifier replacing the input transformer.

The 1176 front panel was returned to silver with revision H.

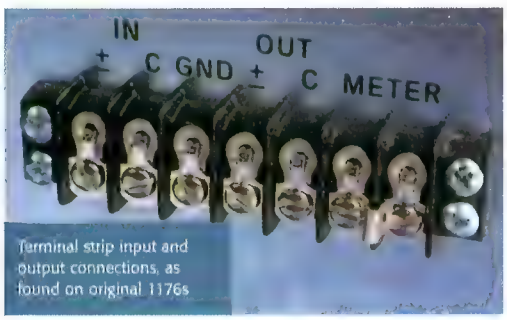
When pressing the GR button, the VU meter shows the amount of gain reduction in dB – simple...

First off, the 1176 was used on a 4:1 ratio when recording some electric guitars through a miked amp. It didn't take much to get a great-sounding result with the 1176. Just using around 3dB of gain reduction added a very useful character to the sound. There is something about an original 1176 that adds a certain presence and bite that can be especially pleasing on electric guitar, and this new unit had that very same character about it.

Treating some electric guitar sounds that had been previously recorded allowed the opportunity of experimenting with the different ratios and the attack and release controls, and with careful positioning it was possible to give the guitar a lot of punch and an apparent sense of urgency in the mix.

When recording vocals, the 1176 was again used with a low ratio, resulting in a very natural, smooth sound and even performance being captured. Strapping the compressor across the vocal when mixing, and adding just a little more squeeze, gave it the presence it needed to sit consistently in the mix, with a nice top end to the sound. The 1176's manual has endorsements from a number of high-profile users – Bruce Swedien always uses an 1176 on Michael Jackson's vocals, apparently.

The four available ratios can cope with any conventional task that could be asked of the 1176, but, as many engineers are already aware, pushing all four ratio switches in at once, or the 4:1 and the 20:1 together, which is much the same thing, can give a quite awesome compressed sound. This is particularly useful in creating a larger than life drum sound, where compressing the room mics on a drum kit, combined with careful setting of the release control, can really squeeze out the room ambience.



Terminal strip input and output connections, as found on original 1176s

Juxtaposition of the attack and release controls is a crucial factor in creating many sounds, and the amount of variation available in the 1176's two controls is more than adequate, giving plenty of scope for subtle changes of the envelope. We tried this out to good effect on grand piano. There's also the possibility of adding a little edgy distortion by setting really short times, if that appeals.

Having used original 1176s on many past occasions, there's no doubt that this new 1176 is what it claims to be. It performs like an 1176 and has *that* sound. This unit provides high-quality compression with plenty of available variation.

Verdict

Bill Putnam's achievements in pro audio have recently been acknowledged by the posthumous award of a Technical Grammy. And rightly so. Past recipients have included Rupert Neve and George Massenburg. The 1176's useful working life has so far spanned five separate decades, and the model is still as popular as ever. It's even spawned a software version in the form of Bomb Factory's excellent Classic Compressors package for Pro Tools.

Software aside, not everyone can own an original 1176. Yet there are undoubtedly many out there who would like to, however, so any new version has to be a welcome addition to the marketplace. Purple Audio's thinly-disguised MC76 has been available for some time and is certainly a fine machine in it's own right, but this new Universal Audio 1176LN keeps the family lineage intact.

This is a unit that will definitely delight both long-term 1176 users and those new to the model. Universal Audio have taken a classic design and successfully cloned it. The 1176 has always been the compressor of choice for many professionals and this welcome new version seems set to continue that tradition well into the new millennium. Here's to the next five decades.

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Against A few more demo projects could be included
Verdict Got to be one of the best audio cards you'll see this year

words
Alan Branch

If it ain't broke, don't fix it. Or so they say. But checking out soundcard supremos CreamWare reveals an addition to their family of products, notably the new and improved Pulsar II. Along with the card comes the all-new Version 2.0 software which, having been redesigned, is much slicker and leaner than the original (which we reviewed back in issue 67).

It's been some years since the original concept for CreamWare came about, based on their SCOPE system. This differs from normal soundcards in that it bases all its processing on onboard DSPs, of which there are now six SHARC chips – an increase of 50% in DSP power over Pulsar 1.

Pulsar II also has a second S/TDM bus for integration with other DSP soundcards from the SCOPE family, providing a huge amount of processing power to whatever system may be running. CreamWare has included everything from synthesizers and drum machines to effects – even a mixing desk!

All can be loaded into the programmable, floating-point DSP chips and, because there's no fixed architecture on the card for the software, it remains completely flexible. Full onboard 24-bit, 96kHz A-D/D-A converters ensure maximum headroom. This card could snap the 'flexible friend' in your wallet, but read on to find out why we think it's worth dishing the dosh.

Overview

The first thing that will strike you about the new Pulsar II is that it's a monster card, yet an amazing piece of engineering. The design of the PCI card seems to have been looked at from every angle – even the breakout cable that holds the six gold-plated phono I/Os for the analogue and S/PDIF connections and three mini sockets seem to have been overhauled with better legend and bigger writing enabling easier connection.

The Pulsar II comes equipped with identical I/Os, as per the original, which gives extremely flexible configuration options, totalling 20 I/Os – stereo analogue, stereo S/PDIF and two ADAT connections.

The I/Os of the Pulsar II are now situated on a daughterboard which plugs into the main DSP card. This allows various interfaces to be fitted as options, providing different types of I/O. There are various I/O cards planned, but only one is available at the moment, housing three ADAT I/Os. This is a brilliant idea that we'll hopefully be seeing more of from all soundcard and interface manufacturers.

In use

We tested the Pulsar II on our new 800MHz studio PC. Installation went ahead with no problems. Having unpacked the bulky PCI card and nestled it into a free PCI slot in the computer, Windows booted up, found the new PCI device and requested the driver provided

CD info

tracks 06-07
A handful of Pulsar loops created by Al B. in a cheesy moment. Feel free to sample them – if you can!

Right clicking brings up an auto-learn MIDI assignment control. A new Modular II vocal module is shown here

on the CD automatically. Then we simply followed the automatic setup program from the CD-ROM to install the Pulsar II software.

The Pulsar II comes with a range of updated drivers including ASIO, ASIO 2.0, Logic, EASI, MME, DirectSound, TripleDAT, OMS and Sound Manager. Also onboard is the ULLI (Ultra Low Latency Interface), featuring hardware-based ASIO support. ASIO driver latency can be set to a very respectable 2ms minimum.

The ASIO 2 driver is a somewhat advanced ASIO driver, featuring direct monitoring and synchronisation for ADAT recorders. Using Logic version 4.1.4 or higher enables use of the EASI drivers, allowing up to 32 channels of audio from Logic via the Pulsar, providing options such as mixing on the DSPs rather than the PC, and so taking the load from your computer. It is also important not to forget that in default state the Pulsar II acts as a standard soundcard, so can be used with all other programs with full DirectX compatibility.

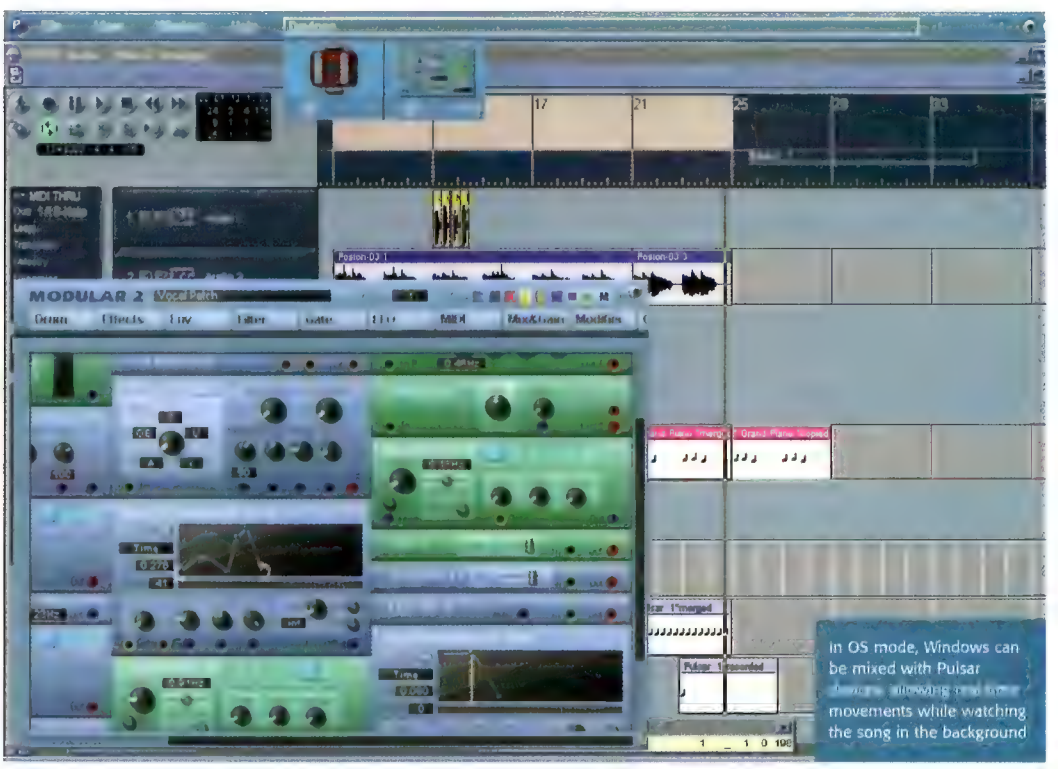
The new-look project window pops up as default, with a variety of internal and external connections – like a standard Windows file browser, but with various options for directories, editing and filtering options.

An innovative feature found on the original Pulsar enabled synths or devices to become transparent when dragged across the window – a nice feature, but one that eats up resources. In the new version, this can be turned off, which is certainly handy when running Logic or Cubase in the background.

Something we didn't notice in the original Pulsar, which appears in the Pulsar II, is an external soundcard source and destination module which means, like the virtual audio cable router programs for Windows, the Pulsar can be routed through to a standard PC soundcard for integrating the Pulsar system.

Now you see it, now you don't – remove devices or add new surfaces in the project window

Apart from the redesigned, bigger, more powerful card and the slicker-looking Version 2.0 software, there are other additional bits and pieces. Effects such as shelving EQs, new compressor/limiters and the absolutely awesome downloadable Modular II soft synth, featuring another large collection of »


In OS mode, Windows can be mixed with Pulsar movements while watching the song in the background

system requirements

PC
233MHz processor, 64Mb RAM, Windows 95/98

Mac
G3, 300MHz, 128Mb RAM, Mac OS 8.6 or higher

specifications

SHARC DSPs
6 @ 60MHz

Sample rate
96, 48, 44.1, 32kHz

Inputs
20: stereo analogue (RCA), stereo S/PDIF, 2 x ADAT

Outputs
20: stereo analogue (RCA), stereo S/PDIF, 2 x ADAT

MIDI In, Out, Thru

Direct I/O daughter board connector

Dimensions
25.7 x 10.8 x 1.6 cm

Adjust ASIO driver latency with ULLI (Ultra Low Latency Interface)

Virtual reality

The day of the virtual synth is upon us. Having the possibility to load a classic 'analogue' synth inside Cubase or Logic and being able to add effects is amazing. The PCI cards from CreamWare take it one step further by alleviating the stress and load on your workstation by using the DSP chips onboard to run all the software devices.

Bring on the GigaSampler

A Gigasampler interface the GSIF source module is just one of the many internal modules available in Pulsar II. It lets you assign eight I/Os from the GigaSampler through the Pulsar. A long list of hardware I/Os and internal routing modules complement the huge list of sound modules to further increase flexibility

» modules, are included.

The new modular synth is a free registration bonus and includes a modular step sequencer, drum module, morphing, oscillators, effects and a natty little vocal formant filter which is very interesting. Simply log on to the Creamware shop (www.creamware.de/index_e.htm) and register the Pulsar II to download the bonus Modular II synth.

Modular II alone makes this package worth buying – it looks awesome! There's an incredibly wide range of modules on offer. These can easily be loaded into an open modular window, and different modules can be patched together with virtual colour-coded cables. There's also an easy menu option allowing you to display or hide certain coloured cables, making routing less of a headache.

The modules can be loaded into the modular window via pull down menus. There's a huge list to choose from. These things can be a bit tricky, so a documented tutorial is provided for those new to the joys of modular synthesis.

To connect up a modular device, the Modular II patch is dragged from the file browser into the project window, which then loads it into the DSPs. The sequencer's MIDI source is then cabled into the modular synth and an analogue out connection is cabled from one of the four outputs to a Pulsar II destination. This can be a variety of outputs, either digital or analogue. Once one has been set up, making multiple connections is easy – all subsequent connections are then made by pressing the 'N' key on the keyboard.

Using the Pulsar as part of a hard disk playback device is easy because of the many options. Wave source and destination may be through a mixer or to an ADAT output, using either ASIO or EASI drivers – it's as simple as loading the devices into the project window. Saving and loading certain projects means the Pulsar card can be quickly set up for different applications – recording with a Cubase or Logic system one day, using it for synthesizers the next.

When devices are loaded into the project window the Version 2.0 software displays a mini version of the synth at the top, showing at a glance what is loaded. Sometimes it can be hard to find minimised synthesizers at the bottom of the screen, so Creamware have gotten around this by including quick access to the MIDI channels and presets below the mini synth.

Right-clicking on any of the devices in the project window gives options to remove devices or a menu of further options called 'surfaces', a surface being what you actually see – like a synth. These can also be minimised to keep the screen workable. These can be used to open the mixer surface, or further windows usually accessed from the device itself. On the Big Mixer you can either open the mixer surface, the routing buss surface or the preset-set list.

Anyone who finds themselves in the dark about any of the onboard features should look to the Pulsar manual, which is on a pull-down menu, split into chapters. This is easily accessible and gives instructions on how to use all of the listed devices. This is an excellent feature, very useful for getting acquainted with the myriad of features.

Also saving more power, the Pulsar II software offers a different way to integrate with Windows by offering two desktop modes. The standard mode sees the whole screen taken over by the Pulsar with its custom made cursors and pointers. Run in the OS desktop mode, the Pulsar Project window and File Browser act like normal windows on the desktop – they can be minimised and restored, giving access to all the normal Windows features while Pulsar is running. This second mode is excellent for split screen work, and, like the original Pulsar, dual screen mode is also offered.

Verdict

Pulsar II, like its predecessor, is still all about synths, but now has more real-time effects and enhanced drivers for hard disk playback. This is a very powerful, all encompassing virtual studio. While the price may seem expensive for a soundcard, Pulsar II provides a multitude of synthesizers, samplers, drum machines, mixing desks and effects.

Add to this the fact that practically any knob, switch or fader can be assigned to a MIDI controller, plus the availability of audio drivers and hardware I/Os, and the Pulsar II really does make for a comprehensive virtual studio card. And more than likely it's totally configurable with your current studio project – not forgetting the daughterboard connection that provides excellent output flexibility.

As you might have gathered, we really do like this card. A lot. It brings a high level of professionalism with its look and sound. The obvious investment in R&D from CreamWare makes the Pulsar II, with its extra power and enhanced drivers and software, better than their original offering of what was already an incredible card.

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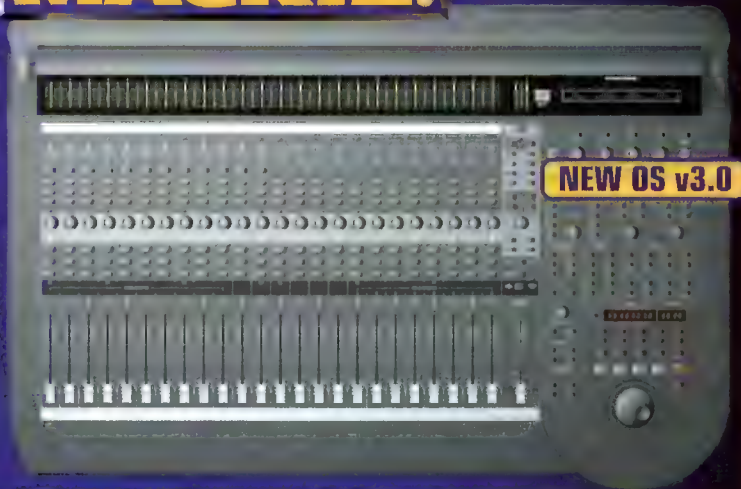

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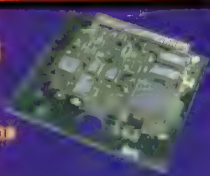

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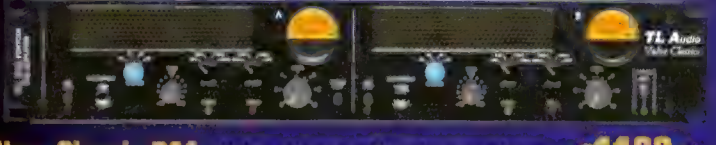

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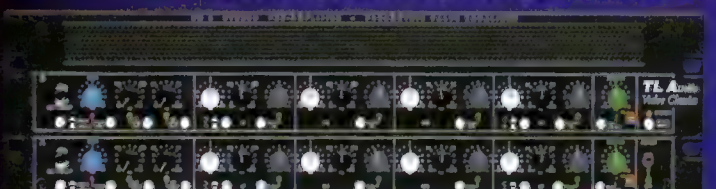

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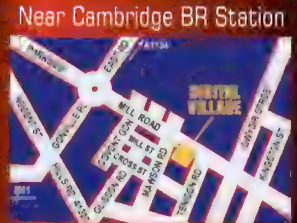

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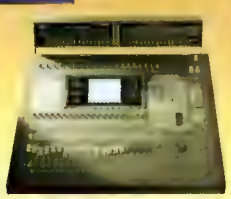

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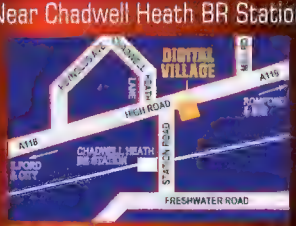

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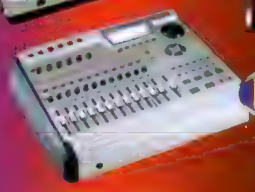

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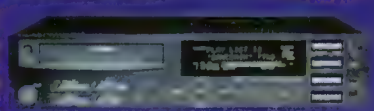

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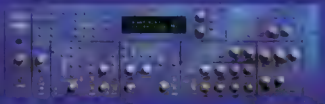

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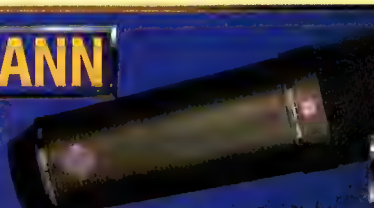

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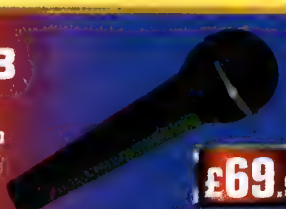

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Details available on request

Brauner VM-1

Valve microphone

Price VM-1 £1,959 › VM-1U £1,353 › Upgrade kit £712
For Superb sound quality › Cylindrical pop shield for total protection › Versatile polar pattern selection › The attention to detail of a hand-built product
Against Pop shield a little fiddly › No rubber feet on power supply
Verdict Extremely high quality valve mic – one of the finest available

Some products have a reputation that precedes them. One such item is the Brauner VM-1, a microphone that has been around for a couple of years and has been highly praised by no less than veteran US engineering heavyweight, Bruce Swedien – a man who certainly knows his microphones.

Swedien went so far as to say that the Brauner mic sounded like the best U47 he had ever heard – praise indeed, as anyone who has ever used a vintage Neumann valve U47 will testify. So it was with a keen sense of anticipation that we awaited delivery of this hand-built valve microphone.

Overview

All VM-1s are hand-built in Germany by Dirk Brauner, a man with a real passion for audio and a deep knowledge of valve circuitry. A longtime renovator of classic valve equipment, Dirk came to the conclusion that modern microphones were compromised by being built to tight budget constraints, so decided to build his own, and the VM-1 was born.

As with most upmarket mics these days, the VM-1 comes in a rugged case containing all the associated paraphernalia of a valve mic. Power supply, suspension mount, pop shield and microphone itself all slot in snugly, firmly embedded in the foam lining with the cabling and users manual neatly stored in a drop-down panel inside the lid.

A neat rectangular aluminium box with a 3U high front panel a little shy of 3" wide constitutes the power supply. This panel has holes in each corner for mounting screws, but strangely the unit has no rubber feet for placement on a flat surface.

The minimalist front panel has an LED indicating that the power is switched on, and a 10dB pad switch which, when engaged, causes the colour of the power LED to change from red to green. A chrome rotary knob selects the polar response pattern which is continuously variable from omnidirectional through to figure-of-eight, passing through all the ranges of cardioid on the way.

A substantial and precisely engineered aluminium suspension bracket is provided to house the Brauner. This consists of an outer ring that screws to the mic stand with an inner central cylinder suspended in place by elastic cording. Each end of the inner cylinder has a black plastic collar ring which, once the mic is inserted, can be tightened to hold it firmly in place, although still loosely enough that it can be turned through 360 degrees, ensuring the diaphragm is pointing in the desired direction.

The angle of the whole assembly in relation to a stand can swing through 180° and everything is held securely in position without having to use undue force on the tightening lever.

A large cylindrical popshield, incorporating both metal and fabric mesh, can fit completely around the top of the mic protecting the capsule from all angles – useful if several backing singers are crowded around it.

This screws directly to the outer ring of the suspension mount via a pair of finger tightened screws, although aligning the threaded holes can be a bit fiddly. Once the pop shield is in place, it's difficult to see just which way the mic's capsule is pointing, so it's best to align it beforehand. The mic body does have an indented spot marking the position of the capsule front that can be lined up with the Brauner company logo on the front of the mount.

The microphone itself is solid, large and heavy – not quite as large as a valve 47, but getting there. Two layers of mesh are incorporated into the grille protecting a large diameter, gold-sputtered capsule, and a specially-selected Telefunken valve is used.

In use

The manual recommends that the mic be allowed an hour to acclimatise to the temperature of the room it is being used in, and a further 15 minutes to warm up to an optimum operating level. It should also be left to settle down for a minute after any changes are made to the polar pattern. So after warming up, it's time to get to work.

words
Trevor Curwen
photography
Katherine Lane-Sims

Probably the most noiseless valve microphone ever built. For serious recordists only..

specifications

Diaphragm
Dual large pressure-gradient transducer

Amplifier
Class A , non feedback

Pattern
Fully variable adjustment

Pad
10dB

Frequency range
20Hz to 24kHz

Amplifier frequency response
5Hz to 130kHz THD @ 138dB SPL 0.3%

Noise
13dB A equivalent

Signal to noise ratio
81dB

Sensitivity
28mV/Pa stable in any directivity

Maximum SPL
142dB for 0.3%THD

Voltage
Switchable 115/230v

Ground
Three-way ground lift switch

On a male vocal, the VM-1 turns in a naturally detailed and exceptionally well-balanced result. The sound is full-bodied and clear with all frequencies seemingly represented in just the right proportions – nothing missing or jumping out, save, perhaps, a smooth rise in the top end. There's nothing untoward about the sound, just lifelike warmth and presence that conveys the intimacy of the vocal performance.

One thing that is very apparent is the VM-1's inherent lack of noise. Brauner claim the mic is the most noiseless valve microphone ever built in the classical valve design, and the evidence seems to support their claim.

Switching the polar pattern to omni mode, the mic was used in layering up some backing vocals with the singers clustered around it for several takes. Again, excellent results were obtained, with a finely balanced blend of the voices being recorded. It's here that the cylindrical pop shield shows its worth, fulfilling a two-fold function of reducing plosives while no doubt protecting the capsule from breath moisture.

On a selection of acoustic stringed instruments, including six- and 12-string guitars and an autoharp, a full range of sound was nailed with the VM-1 effortlessly capturing the transients. The thrum of the bass strings was accurately reproduced, along with plenty of top-end sheen. Admittedly, the autoharp is not exactly a commonplace instrument these days and its quiet nature usually dictates the use of a sensitive mic to capture the distinctive zing of the strings. Yet the VM-1 handled the task with precision, capturing all the nuances of the sound. Hand-held percussion, in the form of an egg shaker, was also recorded with meticulous detail.

Verdict

This is a superb microphone, certainly for vocals and any other instrument where a natural and full-bodied sound with clarity is needed. Of course, £1,959 is a sizable investment for anyone to put into a microphone, but if you want this level of quality and attention to detail you have to be prepared to pay handsomely for it. For anyone wanting to spread the cost, Brauner thoughtfully also offer the VM-1U, a VM-1 with a different PSU, case and suspension mount which can then be upgraded to full VM-1 specifications at a later stage.

More from: The Home Service, 13 Holmesdale Road, Teddington, Middlesex TW11 9LJ
Tel: 020 8943 4949
Web: www.recordingsound.com

Fostex D824

8-track hard disk recorder

Price £1,499 inc 15Gb drive

For Sounds very good at 24-bit/96kHz › Detachable remote › Multiple undo function

Against Editing would be much easier with better display or screen option › Absurdly short lead for remote › Changing drives is a fiddly process

Verdict Standalone hard disk recorders are still holding their own in the face of stiff competition from computer-based options

Although analogue tape recording may seem like a thing of the past for many music technology users, finding a suitable alternative has proved surprisingly elusive. From day one, digital formats have been criticised for sounding too clinical or too harsh compared to analogue. Even given the advantages they bring – no tape noise and line-up problems – many high-end users will still opt for analogue.

One of the more popular reasons for this attitude concerns sample rate and bit resolution. The argument goes that although 44.1kHz/16-bit is fine for the finished CD, it's too much of a compromise for multitracked professional projects. However, this attitude has begun to change with the appearance of better, albeit more expensive, converters.

Of course, while the pro end of the business has been busy making up their minds, project studio users, programmers and virtually everyone on a budget has seized the opportunity offered by affordable digital recording. For many people that has meant struggling with hardware/software conflicts on a computer or with temperamental media for tape-based systems.

But, whichever way you look at it, manufacturers have continued to develop products for these users at affordable prices, and these products are getting better and better. Fostex is one such manufacturer. In fact, their latest recorders are upgraded versions from a range that first appeared four years ago with the D80 8-track digital recorder. Up for review here is the 8-track version, the D824, but there's also a 16-track version available, unsurprisingly called the D1624.

Overview

As may be apparent from the name, the new Fostex recorders are 24-bit machines. In addition to that upgrade, 96kHz operation is also possible. In keeping with most 24-bit/96kHz gear, the D824 and D1624 can also operate at 44.1kHz and 48kHz at both 24-bit and 16-bit, although 16-bit/96kHz is not possible.

The D824 offers eight tracks of recording or playback at any one time, with a further 16 available as 'virtual tracks'. The recorded data is stored on a single, caddy-mounted IDE drive which slots into the front panel. All controls are on the detachable front panel, which connects to the main unit via a 15-pin multicore.

Unlike Fostex's previous 8-track recorder, the D108, the D824 has a more serious-looking grey front panel with the white drive caddy clearly visible on the front. However, aside from the remote controller, the only other things on the front panel are the power switch and drive lights.

The back panel of the D824 sports a number of connectors, a few of which will be new to users of Fostex's previous machines. However, analogue connections are still on phono connectors. For digital users, the D824 provides one ADAT input and output and wordclock I/O as standard. Also standard is one SCSI connector (half pitch 50-pin).

For the purposes of MIDI syncing there are MIDI In, Out and Thru connectors, and also included are RS-422 input and thru connectors. This means the D824 can be controlled through Sony's 9-pin protocol as well as Fostex system exclusive messages.

The back panel also has three expansion slots. One of these allows for the balanced analogue input/output card and the AES/EBU 8-in/out digital card. The other two are for the optional sync board. This features video sync connectors and LTC connectors for full integration into an A/V set-up.

As mentioned the D824 features SCSI as standard, but this is purely for backup purposes – the unit does not record to the SCSI bus. However, if you don't wish to backup to a SCSI device, the D824 will also stream backup to DAT and ADAT via the ADAT connectors.

The only limitation of this is that the backup medium dictates the resolution of the data stored. So, in practice if you are recording at 24-bit/96kHz, backing up to SCSI is the only real option. Similarly, if you're backing up a 24-bit recording to a 16-bit ADAT, only the upper 16 bits will be saved.

The D824 uses a proprietary disk format called FDMS-3. So if you are backing up to a SCSI device, it is recommended that you format the disk from the Fostex and use it solely for that. However, there is also the option to save/load in WAV format, in which case a PC formatted drive will do.

words **Jon Musgrave** photography **Gavin Roberts**

The rack-mountable D824 has a detachable control panel to ease operational pains and strains

The only problem with this is that the maximum usable drive with WAVs is only 2Gb, and, to make things even more awkward, the D824 will not format a DOS drive itself. Needless to say, if you can guide your way through these criteria it's a useful feature for PC users.

Although an optional sync board is available for those wanting timecode or video sync, the D824 offers a pretty comprehensive MIDI sync set-up as standard. The unit can be either a master or slave in such a set-up, responding to and generating MIDI time code (MTC). However, the D824 also responds to MIDI machine control (MMC). So, in a more complex set-up, the D824 could provide the MTC, but be controlled from an external MMC source such as a sequencer.

For the purposes of slaving more than one D824, the wordclock connectors combined with MTC can provide a stable 'locked' system. For those using the Fostex in a digital set-up the manual goes to great lengths to explain the importance and set up procedure for harmonising word clock signals. Thankfully, there is an 'auto' option within the setup pages which deals with most situations.

In use

One of the trade-offs with using digital recorders is that somewhere down the line you're going to have to format the media, and in the case of the D824 this means the 15Gb drive supplied with the unit. Also common with tape based digital recorders, you have to decide at this stage what frequency and bit resolution you are going to operate at. With the D824 offering 24-bit/96kHz this is the first format you're likely to be tempted by. At these rates the 15Gb drive took well over two hours to format. (See adjacent *Licensed To Drive* box for more information on drives.)

One other consideration when formatting is to decide whether to enable the multiple undo function. This facility requires additional disk space and must be decided at the format stage. Without this option enabled, the D824 – like its predecessors – offers only one level of undo.

One of the attractive features of Fostex's recorders is the detachable remote control. However, for some reason known only to Fostex, the accompanying lead is only about five inches long and no

Licensed to drive

Thankfully, the D824 comes with a 15Gb drive already caddied up. However, at some point you're probably going to have to swap the drive for another one. This basically involves taking apart the caddy, unscrewing the drive and disconnecting the IDE and power cables. This is not an impossible task, but, in practice, is no more or less difficult than fitting a drive into a computer. Of course, if your D824 is being shared by a number of different people then they could all have their own caddied drive, which is where a system like this is a good idea.

As far as record time is concerned, the 15Gb drive gives 867 track minutes at 24-bit/96kHz and 1,888 track minutes at 16-bit/44.1kHz. So if you were to record on all eight tracks from start to finish then you'd get 108 minutes and 236 minutes, respectively. Quantum Fireball 5400rpm drives are the only drives recommended by Fostex – so far.

A quick look in a computer mag ascertained that the supplied drive would cost you approximately £100. For the amount of recording time you get that's pretty good value for money – certainly cheaper than any of the SCSI backup options! Incidentally, the maximum recommended drive is a whopping 30Gb.

Although the D824 has a SCSI connector on the back this is purely for backup purposes and not recording. What's more, only one SCSI device with ID 6 can be connected. Given the cost of SCSI backup options such as JAZ, and with drive prices constantly on the slide, Fostex must envisage people simply purchasing another drive when they run out of space.

specifications

A-D/D-A converters
24-bit Delta Sigma
128 x oversampling

Sample rates
44.1kHz, 48kHz, 96kHz

Storage
3.5" E-IDE drive

Backup
SCSI or data streaming via digital connectors

Format
FDMS3 version 2

Number of tracks
8 real and 16 virtual

Pitch control
±6% (0.1 step)

Frequency response
20Hz to 20kHz ±1dB, 20Hz to 43kHz ±2dB @ 96kHz

Dynamic range
More than 108dB (typical)

THD
Less than 0.004% (1kHz, -12dB) (typical)

Analogue I/O
Phono @ -10dBv

Digital I/O
Optical S/PDIF or ADAT interface

Dimensions
482 x 148 x 381mm

Weight
7 kg

Dark side of the D824 – a plethora of jacks, sockets and interfaces for maximum connectivity

extender cable is included as standard. This seems rather daft for the sake of a £10 lead! Anyhow, with the remote removed and positioned on top of the unit, it's possible to check out the features.

The D824 offers 99 programs which essentially act as ways of distinguishing songs, and, as you might imagine, these can be named, and audio can also be moved between them. But the key with editing in the D824 is to make the desired program active, as the majority of editing features are only available within the same program.

Navigating your way around the remote is pretty straightforward, with many features having their own dedicated keys. Any facilities that are accessed with the shift key are marked underneath. In addition to the main transport controls, a two-part jog/shuttle wheel gives instant access to scrub and fast wind options.

Record ready

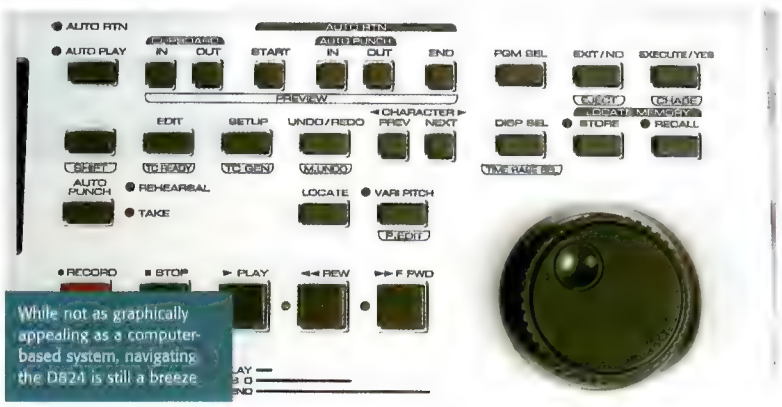
Recording on the D824 is extremely intuitive with eight 'track-arm' buttons underneath the display. However, the buttons don't line up with the track meters, so a little care is needed. With a track armed, pressing the record button puts that track into input monitor with recording achieved by pressing play and record. If you're dropping in on previously recorded material simply press play and record with the track armed.

The locate facilities on the D824 are also pretty comprehensive, with 100 locate points and dedicated start/end points for both the auto return and auto punch facilities. The other dedicated locate points are the clipboard in/outs that are used in conjunction with the edit facilities. Each of the locate points can be stored on the fly by simply pressing the 'store' button, followed by their corresponding button.

These points can then be edited offline or by using the 'preview option'. This repeatedly plays the point over and over with a graphical timeline display. Although not as good as a wave editing option, it does make editing a bit easier.

The actual editing facilities on the D824 are reasonable and are accessed by pressing the edit button. With clipboard points set, it's then possible to copy, cut, paste and move the audio around. Within this menu you will also find the track exchange option, which gives you access to the 16 virtual tracks. This makes it quite easy to record a few takes on separate tracks and then swap them with up to eight of the virtual tracks and carry on working.

As mentioned above, the D824 has a multiple undo feature. This seems to work very well and essentially gives each recording or editing procedure a time and date stamp. By accessing the multiple undo facility and paging through to find the appropriate point in time, you can return to where you were. Obviously, this facility eats disk space, so there is also an optimise function, which deletes all but selected audio.



While not as graphically appealing as a computer-based system, navigating the D824 is still a breeze

Verdict

The D824 is a very accomplished machine. It's good value and sounds excellent at 24-bit/96kHz. The only real problem for standalone recorders is that computer-based systems have far more intuitive graphical editing options. Once you get used to recording and editing audio on a monitor, going back to doing it all on a small display is a bit like trying to program a drum machine when you've been using a computer sequencer.

That said, not everyone wants to extensively edit their audio. And, on the plus side, units like the D824 are very stable and robust. Yet with software designers leading the way when it comes to cramming in more and more features at lower prices, the D824 may have a tough time. However, it will certainly find support amongst those already using multi-channel 24-bit/96kHz audio.

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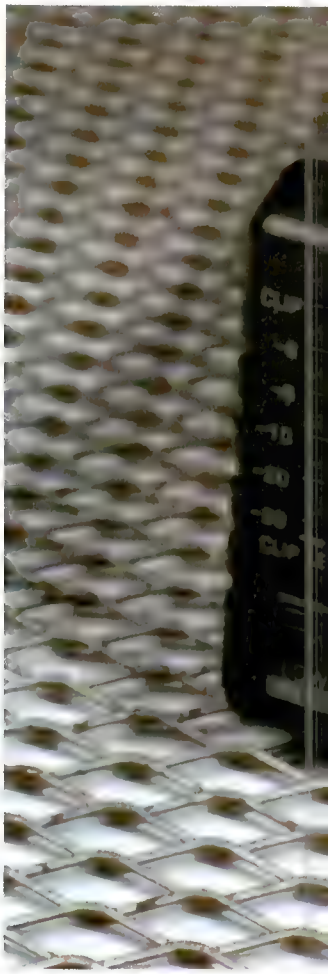
Verdict A great idea for live engineers that also has many uses in the studio



'Good things come in small packages', we're often told. And you don't get much smaller than the Shark from Behringer. This is one of those products that would have caused a serious stir if it had come about just a few years ago, but, even now, it's worth a serious look.

With so many of us using PC or hardware-based hard disk recording systems these days, it's become a necessity to have either a mixing desk (or preferably, a voice channel) to provide us with a mic amp and phantom power for capacitor mics. To cut down on processing power, it's also nice to have a dedicated hardware compressor and noise gate to get a decent recording onto disk.

And seeing as you can't get a voice channel with all these features for much less than £250, this is where a Shark can actually save you for a change! For less than half the price of decent voice channel, you get a mic amp, 48V phantom power, a compressor, a noise gate and a 12-filter feedback destroyer – not to mention a delay facility and a low-cut filter.

Okay, so the Shark was meant for the live gig situation. It was designed as a kind of 'live engineer's Swiss army knife'. As well as compressing, gating and destroying feedback, the Shark could also act as a delay unit for positioning speakers away from the original stacks while keeping everything in sync. Little did Behringer know that us studio-types would see another side to the Shark...

Overview

This thing is small – about the size of a brick – and weighs only 0.5kg. Balanced ins and outs on XLR and TRS jacks are located on the back panel, as are switches to select line/mic operation, as well as a phantom power switch and a gain controller. The multi-pin power adapter also connects here.

The rest of the Shark controls live on its tidy front panel. Here you can access all the Shark's functions with just one knob and eight buttons, and a 4-character LED display, along with three 6-segment bargraphs, show you all you need to know. The functions are simplified, but still very usable.

The compressor has two parameters: density and speed. Density is what we would normally call ratio, although this is set by selecting a value between 0 (bypass) and 100 (max). Speed sets the response time of the compressor between 10 and 1000ms.

The noise gate features only one parameter – threshold – and this can either be 'learnt' by the Shark in real-time or set manually. For most applications, the Learn function works well. The low-cut filter is tunable between 20Hz and 150Hz, and the slope is very steep so you're not going to affect the frequencies you want to keep.

The feedback destroyer is unlikely to be pressed into action in the studio, but you never know when you might have to record a live event, and then it will really prove its worth. Feedback destroyers work by using notch filters to remove the offending frequencies. Unlike older versions of this technology, the Shark uses very narrow (1/60th octave) filters that only remove the feedback without losing big chunks of the main signal. The Shark uses 12 such filters simultaneously, and these can be set in 'static' locations or you can set some of them to 'search' for feedback in real-time. Using the feedback filters couldn't be easier – simply set the Shark to Learn mode, then wave your mic around in the area in which it is to be used. Any feedback is instantly dealt with.

In use

We used the Shark in a number of situations, firstly in the studio. When using the unit as a mic pre and phantom power supply for a capacitor mic, it proves itself to be a very quiet piece of kit. The signal was taken from the Shark directly into Logic Audio where there appeared to be no difference in quality from some very good desk pre amps.

Get the balance right
The all-important connections to the outside world: balanced ins and outs, mic/line switch, phantom power and gain

words **Sean Vincent** photography **Gavin Roberts**

This jack-of-all-trades is an affordable alternative to a dedicated voice channel

specifications

Frequency response
10Hz to 21kHz

THD
0.007% typical @ +4dBu

Noise
>92dB line, >89dB mic

Connectors
Balanced XLR and TRS jack

Converters
24-bit A-D/D-A

Noise gate
Automatic with learn/manual mode

Compressor
Variable density (ratio)

Filter
Lo-pass tunable between 20Hz and 150Hz

Feedback filters
1/60th octave

Dimensions
56 x 88 x 130mm

Power
External power supply

The compressor proved to be quite a surprise. Although there are only two selectable parameters, it sounds remarkably good on vocals. It's not to be recommended as your sole compressor, but for adding a little light compression before going to 'tape', the Shark works just fine. When using it set to the highest ratio (100) it is just below limiting, whereas using it set to about 20 sounds very similar to a ratio of about 2:1 with a threshold somewhere around -10 to 0dB.

Using noise gates without having an adjustable attack and release can be a scary thing when recording. Imagine telling a client that they'll have to redo that last un-repeatable take because the gate shut a tad too early! That's clearly a situation to be avoided at all times. So gating these days is usually left until the mix, but in a live situation gates can shut out a lot of rumble and ambience that you don't want. Fortunately, the gate in the Shark has a perfectly set attack and release time for most vocal applications. The Learn function works first time in most instances.

The low-cut filter worked well, as did the delay, but bear in mind this isn't a delay as in the effect. This merely delays the signal by a set amount with no repeats or mix control.

The feedback destroyer is very impressive. In the past, 'searching' modes often caused a weird oscillating sound that was more audible annoying than feedback, but the Shark showed itself to be a capable and quality performer in this area – a jack of all trades and master of more than one.

Verdict

It's not often that such a budget piece of equipment really impresses when tested alongside 'no-compromise' equipment. It would seem that the Shark is an adept problem-solver in both studio and live environments. At this price, it is definitely a great buy for anyone getting into software-based recording and looking for an affordable alternative to the multitude of voice channels out there at the moment. If you happen to be a recording engineer who ventures out into the live venue now and again, then this really needs to be in your pocket.

Obviously, the preamp, compressor and gate are not up to the quality of some of the more expensive recording channels, but this is only really noticeable in the most demanding of situations.

This small wonder really is a bargain, so don't dismiss it as a mere toy. With a bit of luck, Behringer might believe me when I tell them I lost it down the back of the sofa... you never know!

More from: Behringer UK Tel: 01932 588826
Web: www.behringer.de

Tube-Tech SMC2A

Stereo multiband compressor

Price £2,499

For Great sound ⊙ Very responsive ⊙ Simple

Against Expensive ⊙ No sidechain audition ⊙ Keeps winking suggestively at my wallet

Verdict Without doubt, another Tube-Tech classic in the making

The use of tubes or valves in hybrid compressors and equalizers (tube and solid state circuitry) has, in this digital age, become the norm. But the 'all-valve' compressor is a little more exceptional, and an all-valve multiband compressor is, to our knowledge, unique. And to have such a device made by none other than Tube-Tech is positively mouth-watering.

Tube-Tech is a name synonymous in the audio world for manufacturing some of the best-sounding (and looking) bits of kit to sit in a rack. For those of you who don't know, Tube-Tech are no strangers to valve equipment – in fact, all they concentrate on are pure valve equalizers and compressors. The company have been slowly expanding their range of products over the course of the last few years.

One of the first devices manufactured by Tube-Tech was an enhanced (to all intents and purposes, replicated) Pultec EQ, much favoured throughout the recording industry and as rare as proverbial rocking horse you-know-what! So Tube-Tech were understandably not short of takers when they introduced the equaliser and other single-channel, and then dual-channel, devices.

Overview

Tube-Tech equipment has never been cheap. It is unlikely to crop up on the second-hand market, which has to be the best kind of reference for any piece of equipment. So it was with high expectations that we cut the tape, pulled back the cardboard and slid the SMC2A out of its box.

The SMC2A is, in fact, three very nice stereo optical compressors in one unit with a rather tasty crossover. It comes in Tube-Tech's usual livery of classic 'deep sea blue', it's 3U high, and has no less than 19 retro-styled knobs that are easy to get hold of and have a smooth, expensive feel to them. The front panel also features two switches and three rather nice LED meters. From left to right, first we have the crossover Low Multiplier switch that applies an x4 frequency shift for the low frequency crossover. Next to this we have the high and low crossover frequency selectors. These are both variable, the high giving a range of 1.2kHz to 6kHz and the low giving a range of 60Hz to 300Hz, or, with the use of the multiplier, 240Hz to 1.2kHz.

These ranges are well-chosen, although we would have preferred there to be a high-band multiplier of x2, as well as the low-band multiplier. The selection available is very good indeed, but it does bias the unit towards the treatment of mixes, whereas a tool as powerful as this has the potential to do wonders for almost any source – hence the need for extra flexibility.

Next are the controls for the actual compressor itself. Firstly, we have the threshold, which is variable from -10dB to Off. This is followed by the ratio control, variable from 1.5:1 to 10:1, then the attack time, variable from 3ms to 60ms.

This, in turn, is followed by the release time which is variable from 60ms to 2sec, then finally the output gain, variable from Off to +10 dB. These controls are duplicated for the other two compression circuits. After these are three 11-segment LEDs and the final output gain pot, variable from Off to +10dB. Below that is the bypass switch and power selector.

Around the back of the unit there are two XLR inputs, two XLR outputs and that's it – bar the fuse holder and power socket. There are no ventilation grills and although the unit gets hot, this never presented a problem during our tests.

It's surprising that there's no facility for external sidechain inserts or – dare we suggest – for patching into the stereo compressors individually, should one not wish to use the multiband aspect of the compressor. Granted, it would need extra circuitry and

words **Adam Fuest** photography **Katherine Lane-Sims**

Built to withstand an earthquake, your mixes will shake, rattle and roll with the Tube-Tech SMC2A

that would jack up the price, but if you can afford this little fella in the first place, you're presumably not going to be checking your bank statement before you buy it.

With a unit like this it's actually worth opening the top and taking a look inside, and here the first thing that strikes you is that the build quality is absolutely superb! All components are laid out on one main board, including the four ECC81, two ECC82 and two ECC83 valves. Nothing is loose or coiled and tied, and you get the feeling that these units are put together with pride.

In use

So what does it sound like? Well, here's the first surprise: it is, for want of a better word, clean. Yes, that's right – valve equipment can be (and, if built properly, usually is) clean. It's only over the years that we've grown fond of the sound of valve circuits being overloaded, and that warm saturation creeping in with its rich, progressive, harmonic glow that only valves can produce. Don't misunderstand us here, the sound may be clean, but it's not harsh or brittle. Just very cohesive, full of charisma – and we haven't even started to fiddle yet. So let's fiddle.

When inserted over a mix the Tube-Tech is a little tricky to set up – as are all multiband compressors – because, of course, we're all more used to piling on the level on a single-band compressor and watching the old meters pump away. And the reason why those meters are liable to do that is because the compressor is responding to the entire frequency range of the program material.

So if, for instance, your program material has a lot of low end – like a dance track, for example – then the threshold of the compressor will no doubt be responding to the loudest frequencies – the bass in the case of a dance track – and it will be applying the compression from that point. Unfortunately, at the same time, this will be compressing the high frequencies and the midrange, both of which probably do not require that treatment, but by default are being compressed to the same degree as the bottom end.

Enter multiband compression and with it the need to throw away many of one's normal habits when using compressors. In our dance example, one can set the low crossover to about 200Hz and really give the bottom end the sort of squeeze that would land you a damn good slap in a crowded room and yet still leave the top end virtually untouched.

This sort of finish to a mix has been available since TC Electronic's old TC 5000, but we've never come across a unit that is possible to set up so fast and yet sound so sweet. But the merits of these compressors are not only for the mix, as mentioned earlier. The Tube-Tech has great potential for cleaning and tightening up any recorded material.

For example, we had a rushed session recording a string quartet. The musicians were »

specifications

I/O Balanced XLR (2 in, 2 out)

Mode Stereo only

Low frequency x-over 60Hz to 300Hz

With x4 selected 300Hz to 1.2kHz

High frequency x-over 1.2kHz to 6kHz

COMPRESSOR – ALL BANDS:

Threshold -10 to off

Ratio 1.5:1 to 10:1

Attack 3ms to 60ms

Release 60ms to 2sec

Master gain Off to +10d

Distortion 0.1% @ 0dBU

Frequency response 5Hz to 60kHz @ -3dB

Crosstalk -40dB @10kHz

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flustered and time was short. They had not played together before and there wasn't the empathy that we would normally expect from a string section. After the session was over it was apparent that some of the recordings had a somewhat lumpy and unbalanced quality. With a little tweak with the Tube-Tech we were able to gently smooth out the violin and viola, and, at the same time, take a few hot spots out of the cello, without actually having to touch the EQ, thus preserving what was, overall, a perfectly reasonable sound.

In short, this box will get you out of a whole lot of trouble. When we put it on drum overheads, boy, did we get really excited. One can pump the hell out of the kit and yet the cymbals remain sweet and open. As far as that goes, it's magic!

Outside the general 'heavy treatment' stuff, the Tube-Tech is also a very good-sounding compressor able to do all the day-to-day tasks one expects a compressor to perform. You realise as time goes on that you are using the multiband capabilities of the unit constantly without thinking about it.

Verdict

The ease with which one can become familiar with a piece of equipment is indicative of all the Tube-Tech devices we have come across. It's their simple, well thought-out ergonomics that make these devices so tactile and, as a result, so usable. There are a great many manufacturers out there who should take a good look at why these devices are so great to use.

There are no LCD displays, no multi-function buttons, no memories, no MIDI – just good-looking, honest retro. If there's a downside, it's the lack of sidechain auditioning – a small consideration, perhaps, but when you've got used to it you miss it. But this, along with the additional inputs and outputs, are only little things and don't make any difference at the end of the day to what really is a great box, destined to become yet another classic in the Tube-Tech range.

So is there anything out there that can compare to the SMC2A? Well, yes, there are many multi-functioning digital 'wonder-boxes' already out there featuring multiband compression. TC Electronic, as mentioned before, pioneered the process, but with their multiband algorithm there's more going on than simple multiband compression – which is not to say it's bad, but it's making decisions for you, to an extent, whereas the Tube-Tech puts it all in your hands. It's that responsive direct control that really makes this unit stand out, making it a lot more than just an esoteric mastering luxury. Drawmer have entered the fray, but they also do many other things. The Tube-Tech is just designed to do one job and it does that exceptionally well.

More from: Systems Workshop, The Old Smithy, Church Street, Oswestry, Shropshire SY11 2SP Tel: 01691 658550
website: www.systemsworkshop.com

'Sculpt' that perfect compression with no fewer than 19 retro-styled knobs

Yamaha CDR1000

Standalone CD-R/CD-RW

Price £1,175

For Easy to use ⊙ Quality encoding ⊙ Uses CD-RW and CD-R

Against A little expensive ⊙ Not portable ⊙ Nasty remote

Verdict If a standalone CD writer is what you need, then this is money well-spent

The Yamaha CDR1000 is a standalone CD recorder, and standalone CD recorders may be, to many people, a redundant piece of equipment. The prolific growth of the computer market with its cheap CD writers, paired with an editor such as Sound Forge or Wavelab, and a good CD compiler like CD Architect, is quite sufficient for most peoples' needs – particularly in the home or project studio environment. So why do companies such as Marantz and Alesis, and now Yamaha, keep producing such expensive and, in many ways, inflexible pieces of equipment?

Well, before evaluating the CDR1000, it's worth taking a quick look at the market that this device is designed for – the professional studio. Here we mean a facility which can be booked by anyone, a facility whose equipment is of a sufficient build quality and resilience to withstand the continuous battering and punishment that a commercial facility has to endure; where individual operators have varying degrees of skill and aptitude (or incompetence); where the client is always right – and is usually paying quite a lot of money for the privilege of being right!

These facilities are designed to run virtually 24 hours a day; seven days a week; 365 days a year. Now take a good look around your home project studio. Could your equipment handle that? Or even the *building*, for that matter? Could any engineer worth their salt walk in and find their way around your equipment and software in ten minutes – and run a live session with a band? Most likely not. In this environment you need to provide all the frills; you need to round all the corners and put illuminated signs above every EXIT! It is for these high-pressure professional facilities for which the Yamaha CDR1000 is designed.

Overview

The CDR1000 is a CD writer capable of writing to both CD-R and CD-RW, is 2U, and comes in Yamaha's no-nonsense 'slate-khaki' finish. One of the first things you notice is how heavy it is. Almost anything you take out of a box these days seems to weigh practically nothing, perhaps being made predominantly out of plastic – but not so the Yamaha.

From left to right we have the disc tray with the open and close button and below these the Erase and Finalize keys. Next we have the main control area where the Previous and Next buttons are to be found, followed by the Index Up and Down keys and then the Forward and Back search keys. Next comes the transport controls for Pause, Stop, Play and Record.

Above these are 12 function buttons and the display window, and along from these we have the dual-concentric record level pot followed by the headphone socket with gain control and the power switch. Lastly, for the front panel, is the footswitch socket for the optional footswitch which enables remote Start, Stop and Recording.

The function buttons hold no surprises. If you know your way around a DAT machine then you'll have no problems here. Again, from left to right, we have Peak Hold, Time Display, Input Selector and Utility buttons. The Utility button allows the user to scroll through a series of system options, such as the threshold triggers and fade in and fade out times. Below these we have the Record Mute button followed by the UV22selector (see below). Next to this we have the Repeat and Play from A to B, Sync Record, Auto Insert Ident followed by Index Inc and Track Inc.

The display itself is clear and uncluttered, easily showing exactly what options have been chosen. The bright 16-segment Left and Right meter runs the whole length of the display making it easy to adjust the gain.

Around the back of the unit we have a refreshingly quiet cooling fan, IEC socket, a pair of analogue inputs and outputs on balanced XLR sockets with a -10dBV +4dBU selector. This is followed by a 9-pin parallel port for remote control and duplication use. Then we have digital I/O on coaxial and AES/EBU. Sadly, there is no optical, but there is a word clock input. And lastly, yet another flimsy, lightweight remote to slide off every sloping surface in your studio!

The CDR1000 has the ability to read and write both CD-R and CD-RW and additionally features Apogee's UV22 Super CD encoding system. This process permits getting the best out of the Yamaha's 20-bit analogue-to-digital converters, without the inherent problems

words
Adam Fuest
photography
Gavin Roberts

The CDR1000's rugged build quality and no-nonsense user interface ooze professionalism

associated with the use of standard noise shaping and dither processes. UV22 actually sounds very good when recording acoustic instruments. We were aware of a more pleasant dynamic and a real sense of clarity in the quiet sections of a performance.

Being a real-time recorder, the CD-R is plagued with the usual problem of recording index idents accurately, just as with DAT. But the CD-R1000 has a few tricks up its sleeve, one of these being its ability to store nearly five seconds of audio prior to recording. This, as you might imagine, really does cut down on start errors, making studio life a whole lot easier.

Missing the front of a mix is unacceptable in the aforementioned professional recording environment. The threshold for the Auto ident is variable from 96dB to 30dB, but the three-second time threshold for silence is a problem as it will ID a new track at the end of that precious three seconds, and three seconds of silence in a musical piece is not unheard of.

In use

The CDR1000 was an absolute doddle. Recorders such as this place a serious question mark over the need to have DAT machines in the studio anymore. Certainly given the prospect of buying a new DAT machine one would find it very hard not to go for the CDR1000 instead. The inclusion of its ability to address CD-RWs and its five second record buffer allied to the use of UV22 make this a hot choice for mastering.

There are, however, a few ifs and buts. We find it staggering that a company with Yamaha's experience in audio and computer CD writers has neglected to build into the CDR1000 the possibility of full computer access of this device using, for example, USB or Firewire as a protocol. Or even SCSI control, so that one could at least integrate the CDR1000 into the computer-based studio.

Verdict

So, in the cold light of day, we have an expensive, high-quality piece of equipment which is built to last, is easy to use and, in practical terms, offers everything the professional environment requires. It will out-perform in many ways your average DAT machine and could well ensure the demise of the MiniDisc recorder within the studio – with a little luck!

There are other devices out there that offer a lot for the money – the Alesis Masterlink, for instance. This costs £400 more than the Yamaha, but has hard disk storage and a nice set of dynamics tools along with onboard editing, thus negating the need for re-writable media to some degree. HHB offer a similar device to the CDR1000 at an almost identical price point, but it doesn't have UV22. The Marantz 640 does have superb remote control and build quality, but will not address CD-RWs. The list could go on, but slowly one realises Yamaha have been a wee bit canny here. Now, if only it were portable…

More from: Yamaha-Kemble, Sherbourne Drive, Tilbrook, Milton Keynes, Bucks MK7 8BL
Tel: 01908 366700 Web: www.yamaha.co.uk

specifications

Recording media
CD-R/CD-RW

Playback
CD-R/CDR-W/CD

Sample rate
44.1kHz

Recording resolution
16-bit

Converters
A/D 20-bit, 64 x oversampling
D/A 20-bit 128 x oversampling

Frequency response
20Hz to 20kHz

Tracks
99 max

Indexes
99 max

Sample rate conversion
30kHz to 50kHz
Apogee UV22
16-bit encoding

Signal to noise ratio
97dB

Roland XV-3080

Multi-timbral sound module

Price XV-3080 £1,299 › SR-JV80 boards £179 › SRX boards £279
For Great new patches with stereo waveforms › Quality reverbs › Detailed MIDI control of tone parameters
Against Small screen › Not enough new presets
Verdict A powerful sound module with huge capacity, but not a sea of change

It must be four years or more since the last Roland sound module was introduced. The JV-2080 improved on the very popular JV-1080 by having more expansion slots (eight), a bigger LCD screen and more effects, amongst other things. But it was very much of the same family: the patches were much the same and they were compatible in every way.

Now along comes the XV-3080 and its bigger brother, the XV-5080; the JV tag has been changed, but the numbers are incrementing in a familiar pattern. So what's new? Or, more importantly, should you be trading in your 1080 or 2080? And if you aren't already in the Roland family then should you be marrying into it with the 3080?

Overview

Straight out of the box the XV doesn't look as well-refined as the 2080 – the legend is bigger and squarer, making it seem somewhat gaudy, and harking back to the old Super JX or MKS series, which had similar square, chunky buttons. Then you notice the LCD screen has shrunk back to the size of the 1080 and there are only six expansion slots. It's definitely not love at first sight.

Up close and personal, everything's laid out in much the same way as the JVs – in fact, it's all there, plus a little bit more. Beauty, as they say, is only skin deep, so clearly we need to dig deeper to appreciate it fully.

The most immediate improvement is that the XV series is 128-voice polyphonic as opposed to the 64-voice JVs. For most, that should put an end to note stealing when it's being hammered – certainly on the 16 parts of the 3080. Next up is the onboard wave memory, which has been doubled to 64Mb, giving many more basic sound sources from which to construct patches.

On the 2080 there were four preset banks of 128 patches. This is increased to six on the 3080, including the four banks of sounds from the 2080, plus two new banks. The synth engine is now capable of using true stereo waves, which is what makes up a lot of the two new banks. There are some much better string sounds, some very interesting choirs, more variety of organs and some beautiful pads that could easily accompany any sunrise.

Even though the 3080 reproduces the same sounds as the 2080, hearing them side by side there is a noticeable difference in tone. The 3080 is lighter in the low frequency department and is a touch brighter. This is probably a good thing for the most part because, as any 2080 user will know, they always need a touch of brightness in the mix. Roland puts this tonal difference down to alterations to the analogue circuits and subtle changes to control methods.

The expansion slots are what has always made these modules great – even if the expansion cards are a little pricey. You can add hundreds of new sounds to the module and, of course, you don't have to wait for them to load.

The XV series introduces a new format of card called the SRX Wave Expansion Board. These have a 64Mb capacity, as opposed to the 32Mb of the original SRJV-80 series. At time of writing, there are only two SRX boards available: Dynamic Drums, consisting of acoustic drum sounds from vintage and modern kits (rock, pop and jazz), and a Concert Piano board which is devoted entirely to reproducing a single multi-sampled piano. Sadly, these boards weren't loaded into the review module.

The SRX and SRJV-80 boards are a different fit, but the 3080 devotes two slots to the new SRX boards and four slots to the original ones. On the subject of compatibility, JV Patches can happily be dumped into the XV-3080 (though there will again be the slight tonal variation), but not performance data.

With so many sounds at your disposal, it's almost vital to have some method of navigation, rather than having to dial through the thousands of »

CD info

tracks 04-05
Onboard sounds and demos from the XV3080 and the SRX card

words **Tim Oliver** photography **Gavin Roberts**

The XV-3080 may hark back to mid-'80s Roland gear in looks, but under the bonnet it's Y2K all the way

options one by one. For the XV, Roland have adopted the idea of favourites and categories that will have a ring of familiarity to web surfers. In just the same way as you'd narrow a search on the web, each patch is assigned a category – strings, synth bass, soft pad or techno synth, for example.

A 'patch finder' button lets you select a category, then scroll through all the sounds in that category, regardless of what bank they are in. This can be done in both Patch and Performance modes. Another quick-access method is the 'favourites' list, which you can add to – much like you would in a web browser. This is a great idea for building up a personal palette of sounds for sonic cohesion, and you can have up to 64 patches in your list of favourites.

Use the 'patch finder' to select a sound category, then scroll through its sounds – couldn't be easier

The effects possibilities have been expanded considerably from the 2080, especially the reverbs which, as well as the originals, also include room, hall and plate algorithms from Roland's flagship SRV-3030 digital reverb. The SRV reverbs sound much better, almost to the point where it's worth switching them on. Jesting aside, the effects are great if you're working in single Patch mode – playing live, perhaps. But if you're in Performance mode, using several sounds on different MIDI channels, which all need to be effected, you only have the choice of one reverb for all. This is always going to be a bit of a compromise.

The second bank of effects can now be either chorus or delay, rather than just the former. The chorus sounds much the same as before, and the delay is based on the tempo (set either internally or by »

Sibling rivalry: XV-5080

If you're looking to upgrade your JV then this is probably the way to go. The JV-2080 was a powerful beast, but was always a loner in that its sounds were exclusive and self-contained and it only communicated by analogue outputs. The XV-5080 (£1,799), on the other hand, is a much more sociable and gregarious creature.

It goes beyond the stereo waveforms of the XV-3080 with the ability to read Roland and Akai samples via its SCSI port on the rear into SIMM memory (maximum 128Mb). This flagship instrument is 32-part multi-timbral via two MIDI ins ports, so the 128-voice polyphony probably won't always be enough.

The 5080 has eight expansion slots with a combination of SR-JV80 and SRX series boards. There are four pairs of analogue outs (or eight individuals) plus, and its a *big* plus, it has digital outputs – S/PDIF optical outs and also Roland's R-BUS 8-channel digital output, through which you can send 24-bit digital audio to compatible equipment such as the VM-7000 series and VM-3100 mixers or to a suitably endowed interface.

The 5080 also contains three sets of Roland's Composite Object Sound Modelling algorithms, including guitar amp models. And, most importantly, the screen is the same size as the JV-2080 – all in all, a much more pro unit and something that will easily slot into any modern set-up and get on with the job.

The XV-5080 should be available in a couple of months, so watch this space for a full review.

specifications

Parts
16

Max polyphony
128 voices

Wave memory
64Mb
(16-bit linear format)

Expansion slots
SR-JV80 series – 4 slots
SRX series – 2 slots

Preset memory
768 patches (128 x 6 banks) + 2 banks of GM sounds
64 performance banks
12 rhythm sets + 2 banks of GM rhythm sets

User memory
Patch – 128
Performance – 64
Rhythm set – 4

External memory
SmartMedia card 1 slot
(2-128MB, 3.3 or 5V)

Effects
63 multi FX
4 reverbs
2 chorus/delay

Display
2 lines, 40 characters, backlit LCD

Outputs
(1/4" jack): 6 mono
Phones jack (stereo)

Future expansion

Checking out the SRX expansion boards was well worth it. Concert Piano is a faithful reproduction of a single concert piano, sampled from a couple of different mic positions, and is very impressive indeed; all grand piano nuances are there – from rich bottom end to high end plink. Of the 50 programmed patches, the 'naked' piano is best.

The Dynamic Drums board includes pop, rock and jazz kits, arranged in individual drum patches. All are well-recorded, but there's probably too much room ambience in most of the kicks and snares. The hi-hat selection is especially good, as is the bank of rides.

The legend says it all: there's no mistaking the XV-3080's 128-voice, expandable pedigree.

external MIDI clock) which is quick to set up and very usable. No need to hunt for a delay table or calculator, you just need to know your note lengths.

The third, multi-FX bank has been expanded from 40 to 63 different effects with some very useful additions. There's new distortion and overdrive patches that are much more convincing, a few lo-fi effects that aren't, something called a 'slicer' which is much like a triggered gate that you can switch on or off for different beats. There's also a formant filter for 'ooo-eee' vowel effects, a ring modulator and an excellent tremolo, amongst many others.

As well as the six banks of presets, there's a 128-patch user bank for edits of pre-set sounds you may care to make. And when you run out of space, edits can be stored on SmartMedia data cards via the slot on the front panel. It accepts both 5 and 3.3V cards with a capacity of up to 128Mb. There's also a 256-patch bank of General MIDI sounds to accurately play back general MIDI files.

The XV series supports General MIDI Level 2, a compatible development of the original. Amongst other things, this aims to achieve more standardised musical control over parameters such as cut-off and envelopes. Unlike the JV series, you can't edit the GM patches.

Control of parameters is improved on the XV with something called Matrix Control. Like the JV series, the XV patches are made up of four tones, each of which can be manipulated independently with filters and so on, but, in the case of the XV, each tone can be a stereo wave.

Global communication: six 1/4" jack audio outputs, configurable as three stereo pairs or six individual outs

The XV allows you to assign separate controllers to individual tones. For example, the modulation wheel can be applied just to tone 1, whilst tone 2's filter cut-off can be altered using another MIDI controller. Further complexity of expression can be achieved with the four possible velocity levels: each tone can be assigned a separate velocity range which helps to give a much more natural, realistic instrument sound where tone and attack changes with harder hits or plucks.

The rhythm side of things is expanded with 12 banks of drums; what is always the least imaginative area continues to be so with rock kits and the obligatory 808 'rave' kit. Things are improving with a few interesting lo-fi drums and noises, and those great new reverbs, but do we still need a 'Power Rave' kit?

The six audio outputs are all on 1/4" jack and can be used in a couple of different ways: either as three stereo pairs, with the first pair also outputting a mix of everything, or as six individual outs.

Verdict

Once you get over the appearance of the XV-3080 and get used to the two-line backlit LCD display, which is definitely a pain, the ability and capacity of the unit is awesome. So hide it in a rack, use a MIDI editor and everything will be alright. The stereo waveforms make a big difference to the new patches, and it's a bit of shame more wasn't made of these, rather than faithfully reproducing all the old (mono) 2080 patches. After all, how many lead synth sounds do you really need?

So, to answer those earlier questions: should you be upgrading from the JV series? Probably not, but check the *Sibling Rivalry* box on page 50. And should you be marrying into Roland's sound module family? Definitely, yes. Make that commitment.

More from: Roland UK, Atlantic Close, Swansea Enterprise Park, Swansea, West Glamorgan, SA7 9FJ Tel: 01792 702701
Web: www.roland.co.uk

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Korg ElectribeS

Rhythm production sampler

Price £429

For Great sound, sequencer and FX ⊙ Simple to use

Against Outputs restricted to a stereo pair ⊙ Limited real-time FX possibilities

Verdict Budget sampling has never looked so good – the ElectribeS gives great results and inspires creativity, despite the lack of pro features

In the 22 years since sampling came crashing into our lives in the shape of the Fairlight CMI there have been relatively few changes. Sure, sampling time is plentiful and certainly more affordable these days, but the real changes have come in terms of control – the way we manipulate the samples to create new and exciting sounds, sounds that we simply couldn't even contemplate a decade ago.

And anyone can get into it – you don't need to shell out a small/medium-sized fortune to reap the benefits that sampling has to offer. So say a big hello to one of the most affordable and feature-packed samplers we've seen to date, Korg's latest addition to the Electribe family, the ElectribeS.

Overview

The ElectribeS, or ES-1, is very much in keeping with its elder siblings – the EA-1 analogue synth and ER-1 rhythm synth. The ES-1 (not to be confused with Emagic's plug-in synth for Logic) is a rhythm production sampler. Sampled sounds are assigned to parts, then the knobs and pads can be used to process the sounds. These sounds can then be sequenced using the retro-style sequencer's 16 pads.

All I/O are found on the back panel. It's a little light on connections, with just a stereo pair on 1/4" jacks taking sound to the outside world, plus a headphone socket. For sync'ing up to other gear there's the usual MIDI in/out/thru, as well as a SmartMedia slot for storing samples via optional cards when the 95 seconds of flash RAM onboard the ElectribeS are used up. For sampling, a single stereo 1/4" jack with gain trim deals with mic to line levels and all inbetween.

In use

The Korg comes pre-loaded with samples in its internal memory, which are great for familiarising yourself with the onboard features. The ElectribeS can hold up to 100 mono or 50 stereo samples, as long as they don't take up more than the maximum onboard memory.

When you've had enough of the factory sounds, it's time to start sampling some of your own, which is easily done. Plug in an external sound source, such as a deck or CD player, put the ElectribeS into record-ready mode, set the level, hit the play button to record, and the same button once again to stop – that's pretty much it.

And when you've sampled your hand-picked sounds, it's time to get some rhythms going, which is where the sequencer comes in. The ElectribeS can play up to eight samples at the same time, assigned to the row of nine buttons to the right of the transport control.

Although it can only play eight samples at a time, you can allocate more for a bit of flexibility – open and closed hats, for example, given that (usually) you won't want to trigger these at the same time. There's also a Slice function, which cuts up a percussive loop sample, for instance, allowing you to drop in different parts of the sample. Stereo samples can't be sliced, and, unfortunately, mono sliced samples can't be re-organised to create variations, but it's quite an interesting feature, nevertheless.

Once assigned to each of the pads, tapping them will play the relevant samples – be they kicks, snares, hats, vocals or anything else you care to sample in and assign to a pad. Each pad lights up when active or pressed, and any of the parts can be muted and unmuted for building up layers of a track on the fly.

With the individual samples allocated to the part buttons we can turn our attention to the row of 16 pads at the bottom of the panel – the sequencer – each pad denoting a 16th note. Anyone who is familiar with Roland's TR drum machines, or ReBirth for that matter, will have no problem getting on with the sequencer. Simply select a sample, then highlight some of the 16 pads. The lit ones are where the sample will

words **Oz Owen** photography **Gavin Roberts**

Korg's affordable and feature-packed creative accessory

specifications

Polyphony
8

Max samples
Up to 100 mono, 50 stereo

Sampling time
95 seconds

Sampling resolution
32kHz

Patterns
128

Songs
16

Steps per part
64 max

Steps per song
256 max

Sequencer events
35,700 max

Inputs
Stereo 1/4" jack, switchable mic/line

Outputs
1/4" jack L&R, headphones

Master FX
1

Insert FX
11

Dimensions
300 x 225 x 55.4mm

Weight
1.28kg

be triggered as the sequencer cycles round.

Believe it, creating your own loops doesn't *get* any easier than this. Patterns can be up to four bars long, so there's room for variation, and bear in mind that patterns can be strung together to make a song with all your real-time changes recorded as part of the performance. You can't layer the real-time changes as you would with a more conventional sequencer, so record one lot, resample with the changes, then record more real-time action. Bit of a pain, but hey…

There's a fairly extensive and useable collection of onboard FX – 11 in all – so it's no problem to add a little reverb, phasing, distortion, pitch-shifting or compression, and so on, to your samples, although only one can be used at a time. There's also one master delay effect, but that also has limitations – it works globally, so adds delay to every sound that's playing, but used sparingly it can add a bit of depth and movement to your loops.

There's are also dedicated pads for feeding each part into the FX section, for making a sample 'roll' – machine-gun snare rolls, for example – and another pad that can reverse each sample for more variety.

Verdict

Although obviously not in the same league as the bigger, full-on, studio-based samplers, the ElectribeS really is quite something, and anyone who liked the first two Electribe modules is bound to love this one too. Not strictly a pro bit of kit, but a very creative accessory nonetheless.

It's fun and easy to use, but gives great results. Simply load it up with samples and get those tunes and rhythms sequenced up. And it's so small you could load it up with samples and take it on holiday with you – shame it doesn't take batteries, though, otherwise you could compose your next masterpiece on the beach!

There are always going to be compromises with a piece of kit like this, but at just over £400, who's complaining? The ElectribeS is a doddle to get into, and there's enough control to make it a very respectable music tool.

More from: Korg UK, 9 Newmarket Court, Kingston, Milton Keynes MK10 0AU
Tel: 01908 857100 Web: www.korg.co.uk

AKG C2000B

Single-pattern capacitor microphone

Price £230

For Build quality is of a very high standard › Clean sound › Shock-mount included

Against Lack of pattern selections restricts versatility

Verdict Well-built mic, perhaps a little too clinical in its response

After the introduction of a great set of budget-priced microphones – and anything below £350 is really not that expensive in microphone terms – AKG have released another mic that's competitive on price, yet claims to maintain the build quality of its more expensive siblings. The question is, will it match the others on sound quality or is it really just a big, posh-looking beast that won't deliver the goods?

Although some engineers might not profess to being AKG fans, it would be fair say that there won't be many who *don't* use them at some point. Why? Well, love them or hate them, they have a sound – a sound that's sometimes the perfect match for the job in hand.

Whether it's an old 451 on an acoustic guitar, or maybe a pair of 414ULS' as overheads on a kit, AKG have a firm hold in studios around the world. Now they are taking hold in our homes as well. Most of us understand the need not only for a good recording medium (quality multitrack and the like) but for the source of the recording and all that's in between to be of equal billing.

Overview

When presented with a large mic, in a large box, with a large cradle shock-mount as standard, in all likelihood you're gonna say, 'Hey, I'm getting my money's worth here'. And the C2000B is a fair size, and weighty as well. An all-metal, die-cast body shields the microphone from the rigours of life, but the 'gold-lite' colour looks a little gaudy.

There are two recessed switches, one on either side of the outer shell. One is a switchable pre-attenuation pad, allowing you to increase the SPL capabilities of the mic by 10dB, the other is a switchable bass roll-off to get rid of that unwanted rumble or proximity effect. The filter has a gentle 6dB-per-octave slope, starting fairly high at around the 500Hz mark.

As with most pro/semi-pro mics, connection is on XLR. The mic does need phantom power, but that shouldn't be a problem as even small mixers have this option on the mic preamp stage these days.

The inside of a microphone is a place that most of us should only ever read about, so if you find yourself looking inside the mic then you're either a technical wiz or crazy! Nevertheless, the inner sanctum of the C2000B contains a cardioid pattern transducer capsule, which makes it great for close work on the likes of vocals. The diaphragm is plastic foil, gold-sputtered on one side. This is all protected by a built-in pop shield.

Finally, there's the spider shock-mount. It is, in fact, the same one supplied with the C3000 mic, and is made of sturdy plastic. The mic locks into it very smoothly. It even has a clip for the cable so as to reduce vibration transmission noise which may travel the length of said cable. Nice touch.

In use

We set the C2000B up on a mic stand with the shock-mount and used it to record some female vocals. Connection to the multitrack was via a Neve mic preamp, with the bass roll-off switched in to cut off some low noise from the studio's air conditioning – a common problem.

The sound was clearly helped by the high-quality preamp stage, which is very clean. The C2000B performed very well. A little EQ was added, post-recording, to warm things up, and we also applied a little light compression at around 4:1, just to keep some continuity in the dynamics.

Unfortunately, the built-in shield would appear to be a little inadequate for the job, so another pop shield was incorporated. Once in position, overall response was good. The C2000B seems better utilised on backing vocals with a C12 on the main vocal – a nice contrast between valve warmth and crisp AKG sound.

words **Seb Pecchia** photography **Katherine Lane-Sims**

A capable budget mic, especially sweet on vocals

The mid/top end response sparkles and lets details shine, though watch out for sibilance in this area as it can be a problem. We just made the vocalist back off a few inches, raised the mic position slightly higher than the vocalist's mouth, and the problem was solved.

The C2000B was also tried out on some other instrumentation. Guitars sound great, subtle performance details are really picked up well, and, because of the clinical nature of the response, it also helps get rid of that 'boom' associated with acoustics. It could also be good for instruments like bongos or sax, but the trick here is getting good placement – especially if recording to a digital source, or the results will just sound too clean with no warmth. The C2000B might not necessarily sound like a (so-called) classic or a valve-driven mic, but then it costs substantially less money.

Verdict

The C2000B fits in well with the range of lower-priced microphones in the marketplace. The problem, though, seems to be that there's a market full of similar products. It would have been be nice to see a bit more versatility in the mic, or at least some higher spec features, such as selectable polar patterns.

The C2000B is fully-functional, and does perform well – you'll have to try it yourselves, but it's certainly up there alongside some tough competition. It looks the biz and would make a very good addition to any collection. However, if you already own a mic like the C3000B then you might be better off saving up for a second-hand 414 with everything on it, rather than buying another microphone that performs a similar role to the C3000B.

If, however, you're buying a new mic outright then this is very capable – vocals sound especially sweet. Don't be afraid to use the C2000B on a host of other applications, because, with a little patience, it can give great results.

The shock-mount represents added value and works very well; it isn't fiddly and doesn't fall apart when loading the microphone. The bass roll-off is great, especially if your live area has a floor made of jelly! The fact that you will need another pop shield makes no difference, given that every mic ever made needs one if you're going to play it safe.

More from: Arbiter, Wilberforce Road, London NW9 6AX Tel: 020 8970 1909
Web: www.arbitergroup.com

specifications

Type
Back electret

Polar pattern
Cardioid, fixed

Frequency range
30Hz to 20kHz

Bass cut filter
6dB/octave below 500Hz

Pre attenuation pad
10dB switchable

Power
9 to 52V phantom power

Connector
XLR standard

Weight
325g

Tassman

Software synth for PC

Price $395 (US)

For Nice graphics › Endless synthesis possibilities › Can be used 'standalone'

Against Not VST2.0 compatible › Acoustic presets disappointing › Poor latency

Verdict A modular soft synth with some interesting possibilities.

words
Sean Vincent

Soft synths have been gathering interest lately, partly due to their faithful reproduction of sounds of classic synths that most of us can't afford. ReBirth came along and changed a lot of people's minds about software as a serious alternative to hardware – it was fun to use and sounded great. Since then, a great number of soft synths have come onto the market, but none as yet, has captured the imagination quite like ReBirth did.

Tassman takes a slightly different approach to most of the current crop, in that it isn't a software clone of an established hardware synth, but a completely new take on an old idea – the modular synth. Where Tassman differs, is that it has all the properties of a state-of-the-art physical modelling synth, with the look and versatility of something like the old Roland System 100. This may sound like a match made in heaven, but is it? Let's find out.

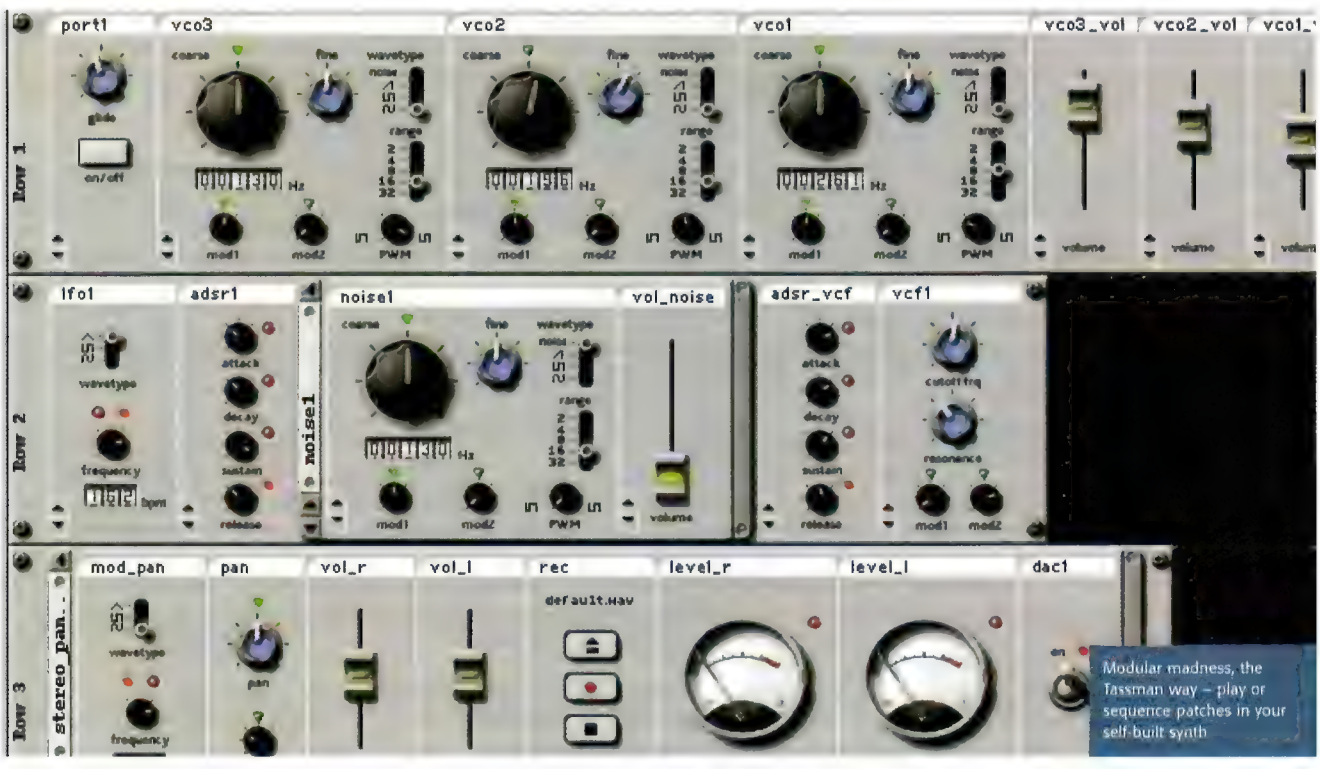
CD info

track 01
Check out the interesting possibilities and awesome power of Tassman with this software demo for PC users

Overview

The software comes on a standard CD-ROM and installs using the challenge and response copy protection system. You'll need at least 64Mb of RAM and a MIDI keyboard to get the most out of it. Tassman is comprised of two parts, the TassBuilder and the TassPlayer – the builder is where you can design your own synths from scratch and the player is where you can play or sequence the patches.

TassBuilder is like a construction page where you can build your own synth. The available components are listed in seven groups on the left-hand side. These are: Generators, Resonators, Filters, Envelopes, Effects, In/Out and Subpatch. Selecting one of these brings up the icons of each of the various options. Building a synth is fairly simple; all you do is drag and drop the parts you want onto the screen and then join them



Modular madness, the Tassman way – play or sequence patches in your self-built synth

together with 'virtual' patch leads.

All the usual components are supplied, as well as the physical modelling ones. These comprise of things like Mallets, Plectrums and Noise Mallet. As you might imagine, these replicate the sound of their 'real-world' sources. Using them in the Generators section makes a huge difference when trying to emulate acoustic instruments like guitars and pianos.

The Resonator section features 14 objects including String, Plate, Membrane and Beam, as well as the usual 'synth' type. These can be configured to work with any generator, so it's not necessary to use a mallet with a plate. You can just as easily strike a plate with a plectrum if you wish.

New sounds? No problem. Whenever you click on one of the components, the help screen displays a description of what that particular one is supposed to do, making the task of building a little easier for newcomers to synthesis. Filters have become a staple diet of decent analogue synth patches, so what does the Tassman provide? Well, there's three low-pass, three band-pass, one high-pass and comb, so there's plenty of scope here. The envelopes provided include the usual ADSR, RMS, VCA, volume and portamento.

Effects can often make or break a synth, and the Tassman delivers here, too. You get the obligatory reverb, delay, flanger and panning as well as some more interesting ones like Scratcher, Inverter and Divider. The Scratcher causes a kind of doppler effect, and the Inverter inverts the phase, while the Divider generates three sub-octaves from the input signal and adds them to the output. Unlike most synths where the effects are tacked onto the end of the chain, the TassBuilder allows you to position them anywhere within the structure of the synth. You can even use a different effect on each module.

The In/Out section of the builder is where you add the keyboard control, as well as the digital to audio converters for channelling the output to your soundcard. Along with modulation controllers and pitch wheels, you also have a 16-step mini sequencer to play with. This looks and works in a very similar way to the one on ReBirth. Using four banks of eight, you can come up with tunes relatively quickly.

A useful addition in this section is the recorder module that saves a monophonic performance as a WAV file. Very handy for quickly getting some Tassman sounds into your audio package.

The SubPatch lets you save your patches for use in other synths. This is kind of like resampling, only with synthesis. It allows you to use a saved patch as a starting point for more synth mayhem.

Let us play

Once you have created and saved your new synth patch, it's time to play it using the TassPlayer. This converts your synth into an ultra retro-styled 'bakerlite 'n' all' soft synth with a functional front end.

The rack can be up to eight rows high, but you can only see three at any one time. All the controls can be accessed with the mouse for real-time control, but, more importantly, you can assign all of them to MIDI control messages. This gives you huge potential for 'morphing' your sounds during a track.

Playing the Tassman via a MIDI keyboard works, although there is a serious latency problem here, which seems to vary depending on the patch. Using the Tassman with a sequencer requires the use of Hubi's LoopBack or something similar. Again, this works, but the latency causes real problems when playing in a part. The best way round this is to use a soundcard patch for recording your Tassman parts, then assign the channel to the Tassman afterwards. This may not allow you to get the feel of the patch against the track in real-time, but at least it works.

Verdict

Tassman initially proved problematic; the response to the challenge was not accepted when we tried to unlock the copy protection. We got it running, only to encounter more hiccups when trying to enter the TassPlayer to try out some of the presets. The synth claimed the MIDI port was already in use, but it wasn't. A quick visit to the Tassman website and a bugfix download later, and we were ready to rock.

The Tassman analogue presets are very cool and are sure to be used a fair bit by lazier programmers, but the acoustic simulations didn't really match up to our expectations. Programmers may well be able to come up with something better, but the first 10 presets can often sell a synth – or not. There's awesome power buried within the Tassman; it just needs coaxing out.

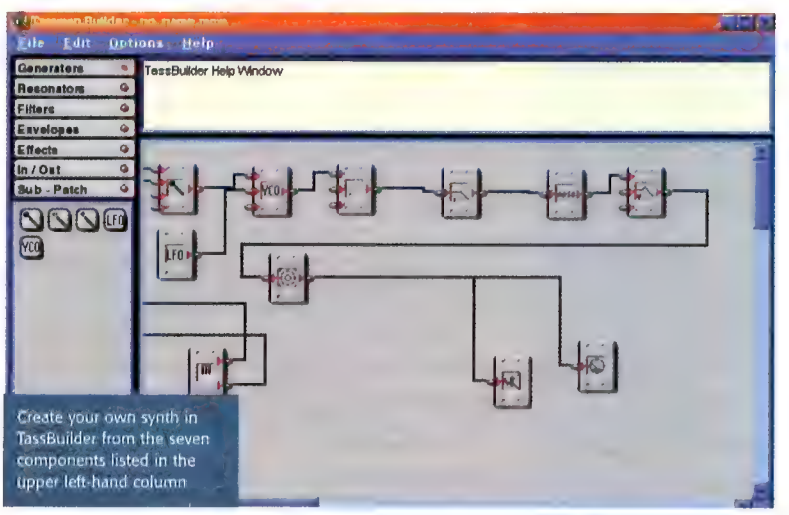
Doing away with the challenge and response copy protection would be a good thing. Developers need protection from piracy, but I'd think twice before buying any software that can only be unlocked by contacting the manufacturers. Also, why not make it VST 2.0 compatible? With a little extra programming it would sure make life a lot easier for the end user.

At the end of the day, soft synths are only as good as their compatibility with our existing software, and they really need to integrate seamlessly. Tassman is probably as good as, if not better than, any other soft synth we've seen – it just needs more thought from the perspective of how it will be used.

More from: Applied Acoustics Systems, 1030 St-Alexandre, Suite 900, Montreal, Canada H2Z 1P3 Tel: 001 514 871 8100 Web: www.applied-acoustics.com

system requirements

- Windows 95/98/2000
- DirectX supported soundcard
- CD-ROM drive
- 800 x 600 or higher screen with 256 or more colours
- Min 32Mb RAM
- 233MHz processor



Create your own synth in TassBuilder from the seven components listed in the upper left-hand column

new releases

All the major album releases of the month reviewed and rated, our snap verdicts on the best of the rest, and our classic sessions spot *Milestones*

in brief

THE WAVE ROOM *Love Medicine* (Bella Union)
Semi-psychedelic beat whimsy, augmented with some catchy, moody keyboards and vocals that are, by turns, angst-ridden, intelligent and well-sung. Quality stuff. (PS)

CHRISTIAN KIEFER *Welcome To Hard Times* (Extreme)
Forget Will Smith or John Wayne – this is the *real* Wild West; a bizarre and addictive offering that includes a sinister version of 'Home on the Range'. The perfect antidote to bangin'-beat fever. (AR)

VARIOUS *Beach House* (Hed Kandi)
Another fine collection of tunes to get you in the summer mood. A little bit more on the Real Ibiza vibe than previous Hed Kandi compilations; a good soundtrack to any summer holiday. (CW)

BURNT FRIEDMAN *Con Ritmo* (Nonplace)
The prolific BF invites us to dive into the light and refreshing waters of Latino-lounge madness with this collection of quirky, playful, jazzy numbers fused with a healthy twist of electronica. Nice. (OO)

IAN ASTBURY SPIRIT/LIGHT/SPEED (BEGGARS BANQUET)

The Cult man continues his solo career with his second effort. This is actually a couple of years old, having been recorded in the desert and then lost, commercially, until Beggars Banquet went for it. Apparently about 'defining the time we're in', it's almost prophetic in that it contains Cult pieces like 'The Witch', recorded a few weeks before the group's unexpected 1999 reunion occurred. Most of the tracks are pretty urgent – in a T. Rex-meets-Morrisey way – but Astbury's warmly-phrased vocals add a poetic something to it all. A powerful album. • *Phil Strongman*

Producer: Unknown
Studio: Unknown
Engineer: Unknown
Verdict: Ex-Cult man makes cult CD.....8/10

EN VOGUE MASTERPIECE THEATRE (ELEKTRA)

Looking at them, it's hard to understand why En Vogue should have such trouble finding at least one halfway decent man between them – the kind of guy whose antics won't set them off on their Oprah-in-crushingly-predictable-rhyming-couplets routine. How you feel about this fourth slab of inexplicably-named R&B will probably depend on your feelings about the genre in general. The minimal beats sound lazy, the classical references pointless, and the 'Diva' accolades fatuous in a world that's given us Marion Williams and Patti Labelle. Existing fans will love it. • *Simon Ounsworth*

Producer: Denzil Foster, Thomas McElroy
Studio: Unknown
Engineer: Unknown
Verdict: Leave at the interval.....5/10

BROOKLYN FUNK ESSENTIALS MAKE THEM LIKE IT (DORADO)

Six years on from the excellent *Cool, Steady & Easy*, Lati Kronlund's 11-piece return with a long-player that's about as eclectic as you'd expect from a band whose multi-ethnic line-up puts Chelsea to shame. Funk, soul, reggae, mambo, drum'n'bass, house – you could almost believe they're doing it for a bet. But, a couple of anaemic soul tunes and some slightly annoying spoken word musings aside, *Make...* easily lives up to 1994's Arthur Baker-produced floor-filler, which makes its non-appearance on vinyl all the more frustratingly bewildering. • *Simon Ounsworth*

Producer: Lati Kronlund
Studio: Unknown
Engineer: Unknown
Verdict: Lati's got the funk.....8/10

LEE GRIFFITHS NORTHERN SONGS (ZTT)

Judging by these 12 exercises in finger-pointing, Manchester singer/guitarist Griffiths must have been absent for the 'show-don't-tell' module of NVQ Songwriting Level One. Like an old East German car, he only seems to have two gears – 'impassioned' and 'stop' – and by the end of a set that doesn't deserve the Martyn/Buckley comparisons it's drawn, you're left begging for him to take his heart off his sleeve and stash it somewhere out of sight. Griffiths' themes are undeniably important, but his didactic warbling could have Arthur Scargill voting Tory. • *Simon Ounsworth*

Producer: Unknown
Studio: Unknown
Engineer: Unknown
Verdict: It's grim up North.....4/10

THE DANDY WARHOLS
THIRTEEN TALES FROM URBAN BOHEMIA (CAPITOL)

The Dandys' third album starts with breezy '60s horns, Mexican-style, and a song that wouldn't be out of place on a Neil Young anthology before shifting into spacey, Arabesque rhythms and the piercing guitars of big-time rockers like the sinister Nietzsche. Diverse is the word that keeps cropping up as the indie-king Warholians set up synthesized walls-of-sound only to crash through them with poignant near-ballads and hand-clapping country yodels. Crisp production, and a perverse sense of humour, keeps it ticking over nicely. Boring it isn't. • *Phil Strongman*

Producer: Courtney Taylor-Taylor, Gregg Williams
Engineer: Unknown
Studio: Unknown
Verdict: 13 – lucky for some................................7/10

EMINEM
THE MARSHALL MATHERS LP (AFTERMATH/INTERSCOPE)

Love him or hate him, on close inspection it's hard to dismiss Eminem as the violent, bigoted misogynist he purports to be. Beneath the shallow crust of profanity and vainglorious boasting is one of the most talented, intelligent, thought-provoking and humourous lyricists around today. Accompanying his superlative vocal performance, there's an elegance and simplicity of production at work here that other producers would do well to emulate. The result is one of the best second albums I have ever heard, and one which thoroughly deserves to silence his many critics. • *Alex Williams*

Producers: Dr. Dre, Eminem, Mel Man, various
Studio: Various
Engineer: Various
Verdict: His name still is 9/10

RICHARD ASHCROFT
ALONE WITH EVERYBODY (HUT)

Mellow bass, sweeping strings, moving lyrics – all things you'd expect from a Verve album. So it's no surprise to find them all here on Richard Ashcroft's solo debut. Long-time Verve producer Chris Potter even shares production duties. But there's a very different tone here. With the influence of world-class session musicians Pino Palladino on bass and BJ Cole on pedal steel guitar, Ashcroft has explored his country-blues side. Old Verve fans will miss his 'fuck you' attitude, but Ashcroft's voice is still beautiful enough to forgive him. • *Gabrielle Stackpool*

Producers: Chris Potter, Richard Ashcroft
Engineer: Chris Potter
Studio: Metropolis, Olympic
Verdict: Sweet love, but no balls.......................7/10

JAMES HARDWAY
MOORS & CHRISTIANS (HYDROGEN DUKEBOX)

Inspired by a bootleg Cuban Allstars album, James Hardway, aka *The Mix* alumni David Harrow, embarked upon the two-year project that became *Moors & Christians*. Veering away from samples and electronica, Harrow has made a deliciously organic album that merges the musical cultures of Jamaica and Cuba with his own unique take on the accumulated material. The outcome is a soulful, emotive journey through powerful musical cultures, rhythmically infectious, yet precipitated by harmonic and structural intricacies that make this an album for all seasons. • *Derek O'Sullivan*

Producer: David Harrow
Studio: Various
Engineer: David Harrow
Verdict: Album of the Summer, and beyond...9/10

in brief

DANNY HOWELLS
Nocturnal Frequencies II
(Logic Records)
A more underwhelming collection of tunes you'll surely not find – until *NF III* finds its way onto the shelves. Sure, Danny's got the pedigree with residencies at Bedrock, Ministry of Sound and Renaissance, and this twin CD mix features the odd highlight, but ultimately it doesn't stir, excite, innovate or intrigue. MOR dance for the Prozac generation. (DT)

SOFA SURFERS *Cargo*
(Klein Records)
This is some cooool shit – dirty, funky, dubby and jazzy. Veering wildly between the laid-back and the frantic, this second album from the Viennese foursome drives forward into dark yet compelling territory. Look out for the highly-recommended 'Beans & Rice' (track 2), as chosen by the Stereo MCs for their recent *DJ Kicks* mix CD – highly recommended. (OO)

MILESTONES: 1989

NWA
STRAIGHT OUTTA COMPTON (4TH & BROADWAY)

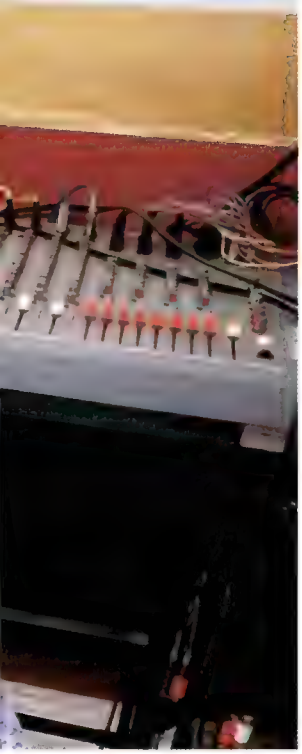
[illegible]

Producers: Dr. Dre and Yella
Studio: Audio Achievements, Torrance, CA
Engineer: Donovan Sound

Globo warming

words **Gonzalez O'Sullivan**

Technology meets culture on Globo's latest album, recorded in three 'spare room studios'. Producer and band member Paul Thompson talks tech...



Deep in the heart of the beergut of the British Isles more readily known as East Anglia lies the market city of Norwich, subtitled on its 'Welcome To...' signs (seemingly without a hint of self-consciousness) as 'A Fine City'. Separated from metropolitan connerbations by huge swathes of flat meadow and woodland, and connected by a main artery that frequently narrows to a life-threatening clot, Norwich, in spite of its self-proclaimed fineness, has never really drawn from the centre of the country in the same way that other radiating areas have. It could be the quirkiness, exemplified by a unique accent that's country cousin, downbeat drawl and nasal twang in equally bizarre measures. On the other hand, perhaps it's the enforced pensive pace of life, stoically unresponsive to frenetic outsiders and laced with an easily-overlooked irony all its own.

The Globo force (L-R): Paul, Mark and Steve

Either way, no-one there is complaining. "I was doing an interview with Melody Maker the other day," Globo's Paul Thompson deadpans. "The bloke on the phone said to me, 'Are you in town?' and I said 'What, Norwich? Yeah, I just came back from town'. I don't suppose that's quite what he meant, though. The thing is," he continues, "I'm quite happy to be based here, with my football team and my studio and my music. I never really felt the need to be anywhere else."

Thompson, along with Steve Appleton, a man with the superficial reticence of someone who 'knows', share the Globo mantle with Mark Wernham, their London-based third partner. The three have been working under the Globo moniker for some six years now, during which time they've unleashed a powerful and controversial debut album, *Pro-War*, and a string of provocative singles, the most infamous of which, 'Thirteen', originally used samples from a police interrogation tape, and subsequently saw the band embroiled in a legal battle that threatened them with a five-year prison sentence for receiving stolen goods and perverting the course of justice. Naughty, naughty...

A cursory glance around the lounge area of Globo's studio environment throws up a telling introduction to the unconventional nature of the band's activities. The main wall is adorned with three framed, miniature bombs ("My version of the traditional flying geese," Thompson explains with a wry smile), and a bookshelf offers the incongruous proximity of tomes like *The Luftwaffe Data Book* and *Dance Music - Programming Secrets*. What exactly is going on here?

"Ah, the Luftwaffe thing?" Paul grins. "Well actually, it's a special interest of mine that started when I was eight years old. I'm actually working on a multimedia presentation about the Luftwaffe at the moment. It explores the idea of technology meeting culture in a desperate situation, and how that process has had an impact on consequent developments – we wouldn't have ring-pull cans if it wasn't for the V2, for example.

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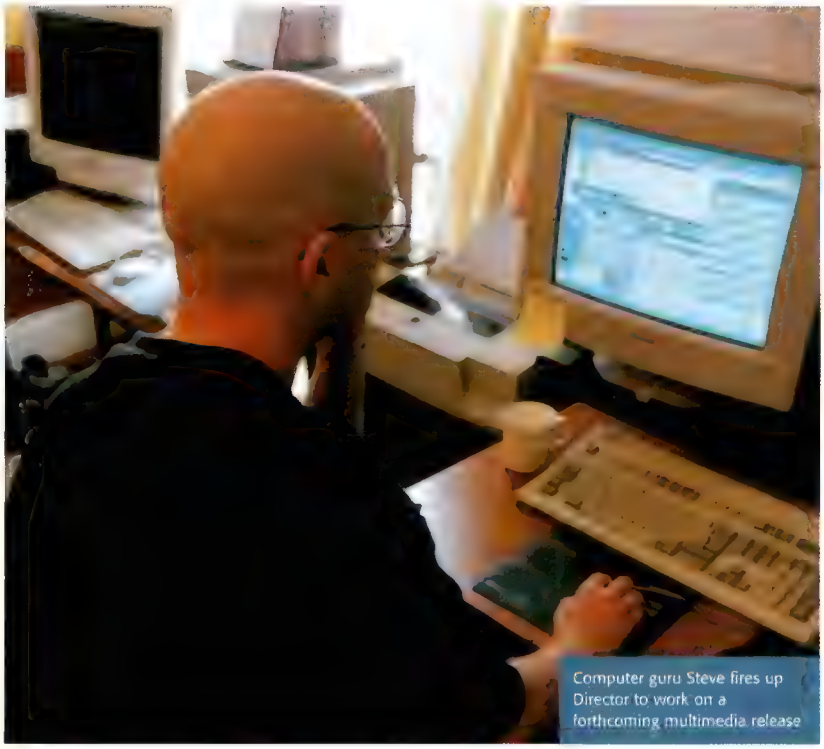
Paul during a lucid reprieve from obsessive hi hat programming syndrome



Computer guru Steve fires up Director to work on a forthcoming multimedia release

"In England we've been brought up with the Spitfire, and I guess I just wanted to have a look at the other side. I suppose it's a long-standing fascination of mine with the cowboy-in-black kind of figure." Quite. Aside from this vaguely sinister preoccupation, however, Thompson and co. have been busy compiling the follow up to *Pro War*, in the form of their new album *This Time It's Globo*. The result is a compelling mix of textural electronica that moves from dubbed-out techno to atmospheric breakbeat with a solid dose of four-down groove action bridging the gaps. The album is more like a compendium of Globo's studio sophistry over the past four years or so, retaining a timelessness that's a credit to the threesome's musical overview.

"The album was written and produced in three terraced houses, in spare-room studios, and it catalogues our work over an extended period. In fact, one of the tracks on the album was written around the time of the European championships in 1996," Paul explains with a pre-Romania spirit of optimism. "I used to be very paranoid about the sound quality our productions achieved, given that we've always been a 'spare-room-based' outfit, but everyone seems to think that the results are good, so I guess we're getting it right." he adds.

And while it's true that the Globo set-up does occasionally border on the home-made – Cubase v2.5 running on an old 8Mb IISI Mac, a brace of stompbox guitar effects pedals in place of slick rackmounted outboard – there's no suggestion of compromise in the finished sound. Much of the credit for this triumph of production quality over gear is down to Paul's obsessive attention to detail, as he illustrates "I did virtually go mad doing the album, getting really anal. Hi-hat programming for eight hours into the night was quite common, and the product really is very detailed. I suppose I just had too much time on my hands."

Globo's music is firmly rooted in conceptual writing as opposed to club-friendly functionality, and Paul makes no bones about the fact that what they do often veers more towards sonic art than dancefloor groove. "I've tried to write club tunes, but I found that I was useless at it, so now I tend to do what I'm best at, although I'm always assuming that art is going to be relatively unpopular. We've been involved in information-heavy, art-based performance for a long time now," he reiterates. "Generally Globo tracks start from a title. Because the stuff we do is heavily concept-based, in the sense that tracks and albums are usually about something specific, we like to have

CD info

track 17-22

Paul has selected a bunch of his favourite Globo samples for *The Mix* readers – but be warned – this collection is seriously off-the-wall!

Globo's favourite gear

Paul's background lies in more traditional live bands, but the influence of artists like Cabaret Voltaire and Meat Beat Manifesto in the early '80s saw him exploring electronics in music at a point when the technology was relatively new. "The first thing I ever bought was a Juno 106, which I got in 1985, pretty much when it first came out," he reveals. "I used the Juno to trigger a Roland S-220 sampler back then, in the early days of technology-based music. This was pre-Cubase, so I never had an Atari. I started off doing everything manually, with 4-track recorders and tape sampling. The Akai S3200 came a lot later, when I got more heavily involved in sampling.

"The JD-800 I bought when it came out as well, because it was essentially a modern Juno, with some amazing sounds. I use the Prophecy a lot as well, and I kind of liked the idea of spending so much money on a monosynth! The Jupiter 4 is another favourite. It's got a MIDI retro-fit, which is excellent, and we've never had any problems with it at all. I think anything with wooden sides on it has got to be good. I was going to get the SH-09 retro-fitted but that seemed a bit over the top, so I tend to just let that run, put hold on and let it do its thing.

"Elsewhere, there's the old reliable R8 drum machine, which again I still use a lot – having eight outputs means you've got loads of individual control, so I can send parts through different effects, phase the hi-hats, delay the snares, and so on. The outboard is all fairly standard. The most interesting things, processing-wise, are probably the pedals. I've got loads of Boss guitar effects, and they get used for pretty much anything and everything. And the Mutronics Mutator is brilliant, although I didn't really get to use it so much on this album.

"The latest purchase was the JP-8080. Initially I just loved the look of it – I had to have it as soon as I saw it. It's proved to be a superb module though. I'm looking forward to using the vocal processing – we often use distortion on vocals, so it'll be interesting to explore things like the vocoder in the future. It's funny because this set-up is really quite retro when you look at things like VST, but I just prefer to be able to physically navigate my way around a studio. We've got a really powerful PC here, and I've toyed with the idea of using Cubase VST – it's actually still sitting there in the corner in a box – but to be honest, I don't want to spend any more time than I have to staring at a screen."

selected kit list

SYNTHS

Roland Juno 106, JD-800, JP-8080, Jupiter 4, SH-09 and R8

Korg Prophecy

E-mu Vintage Keys

SAMPLERS

Akai S3200

Roland S-220

OUTBOARD

Digitech TSR24 reverb

Digitech DSP256XL

Digitech DSP16

Mutronic Mutator

Yamaha E1005 echo/delay

Yamaha REV100 delay

WEM Copicat tape delay

Echoman EM150 echo/delay

Boss guitar pedals

COMPUTERS

Apple Mac IISI running Cubase v.2.5

MIXERS

Soundcraft Spirit Studio 16:4:2

Soundcraft Spirit Folio 12:2

MONITORS

Tannoy monitors

RECORDING

Tascam DA38 digital multitrack

And this is where it all began for Paul – with his Juno 106

that angle on the music we make – it's technology-based music, so there isn't a lot of room for lyrical expression, but there's always an over-riding idea behind what we do, although it's not necessarily as politically-driven as people have assumed in the past..

"*Pro-War* was certainly an anti-censorship album, but we're not really strongly political, even in a socio-political way, we're more disassociated in that sense. I do reserve the right to be interested though, and to make a comment on larger issues, which again is probably why we're not very good at making club music; there's too much content in what we aim to produce. Don't get me wrong, I've got nothing against that type of music, and to do it well is actually very hard. Making minimal, functional club records is a skill that I'd be the first to recognise, but what we do is more for listening, more layered and intricate.

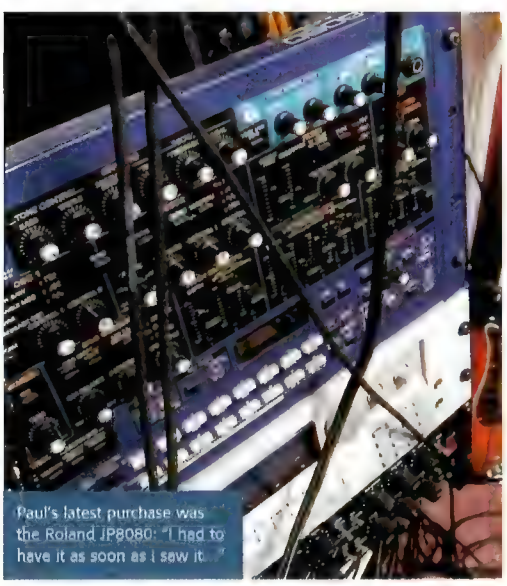
"I suppose the only thing I've never really been able to get my head round about that kind of music is the dancing element," he confesses. "I love a good funky drum beat, but I guess I'm just not a clubber. Steve's more of a fine-Chardonnay-and-good-Indian-meal-at-home kind of guy as well. I guess Mark is more involved in club culture than us really, so that influence comes from his input more than ours."

Contradiction, then, is a key element in the Globo sound, and indeed in their raison d'etre. Dance music made by non-dancers. Political content provided by disaffected, apolitical types. Technology-based production empowered by a reluctance to get bogged down in new technology, and cutting-edge creations from what many would regard as a provincial backwater. This time it's most definitely Globo…

Phone, oh…

In the aftermath of the 'Thirteen' fiasco that threatened to abruptly end Globo's musical career with incarceration, the band are particularly cautious about sampling, sensibly steering clear of litigious matter in their subsequent productions. There remains a place for the unusual in their music though, as Paul elaborates "I have often started tracks with samples, but most of the samples we use now are found, rather than lifted from films or other potentially troublesome sources. There's a track we've written that uses these answerphone messages that we got by accident from a bloke who obviously got the wrong number, and couldn't understand that he was talking to a machine. He left 22 messages, one after the other, and they got more and more disturbed as they went on. There was about 40 minutes worth from this same old geezer, who was either pissed or confused, or both. It's a bizarre collection of rantings, and in the background you can hear *The High Chapparal* on the TV, running from start to finish behind his messages." [*Check out track 22 on this month's CD.*]

"The 'Thirteen' thing actually came from a tape that we were sent – we used to advertise at our gigs for people to send us information tapes or anything of interest really – but with the new material we've been working on, there's more of a lyrical content, and a lot more live instrumentation – guitars, cellos, percussion – so we don't have to worry so much about clearance. When we do use sampled loops, they're so manipulated that you'd never know where they originated from anyway. We've also started buying a lot more valve outboard recently, TL Audio compressors and EQs, for example, again because we're recording more live instruments and multitracking on the newly acquired DA38. The valve gear allows us to add that kind of natural warmth and keep things as organic-sounding as possible."



Paul's latest purchase was the Roland JP8080: "I had to have it as soon as I saw it…"

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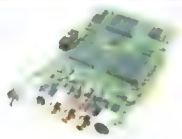

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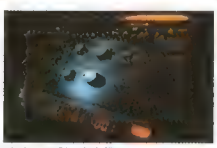

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Photo: Gavin Roberts

Sawmills

words **Oz Owen**

One of the most secluded studios in the UK has provided the perfect spawning ground for some of the past decade's biggest records

As regular readers of *The Mix* will know, we'll take any opportunity going to get out and about – especially if it means heading out of town to spend the day at a top studio. More often than not though, our travels take us to the heart of some city or other, where we'll beat a path through congested roads and uncooperative 'locals', to arrive at an air conditioned bunker with an SSL and a stack of outboard denoting its use as a studio facility.

So when studio owner Dennis Smith invited us to take a look at the legendary Sawmills residential studio, situated way off the beaten track in Cornwall, how could we resist? With the car loaded and under Dennis's expert direction, we headed down to Golant on the picturesque south coast of England. 'Keep going straight through the village until you can't go any further, then call me from the phonebox,' we'd been instructed, and sure enough, when the road finally stopped in a quaint village harbour, we phoned through for assistance.

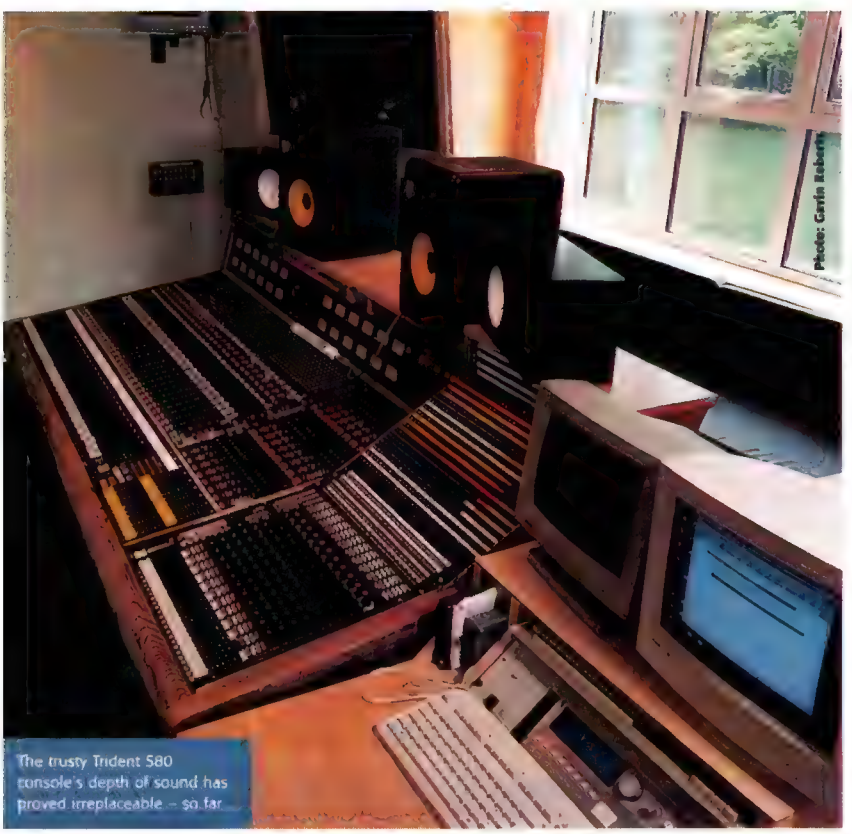


Photo: Gavin Roberts

The trusty Trident 580 console's depth of sound has proved irreplaceable – so far

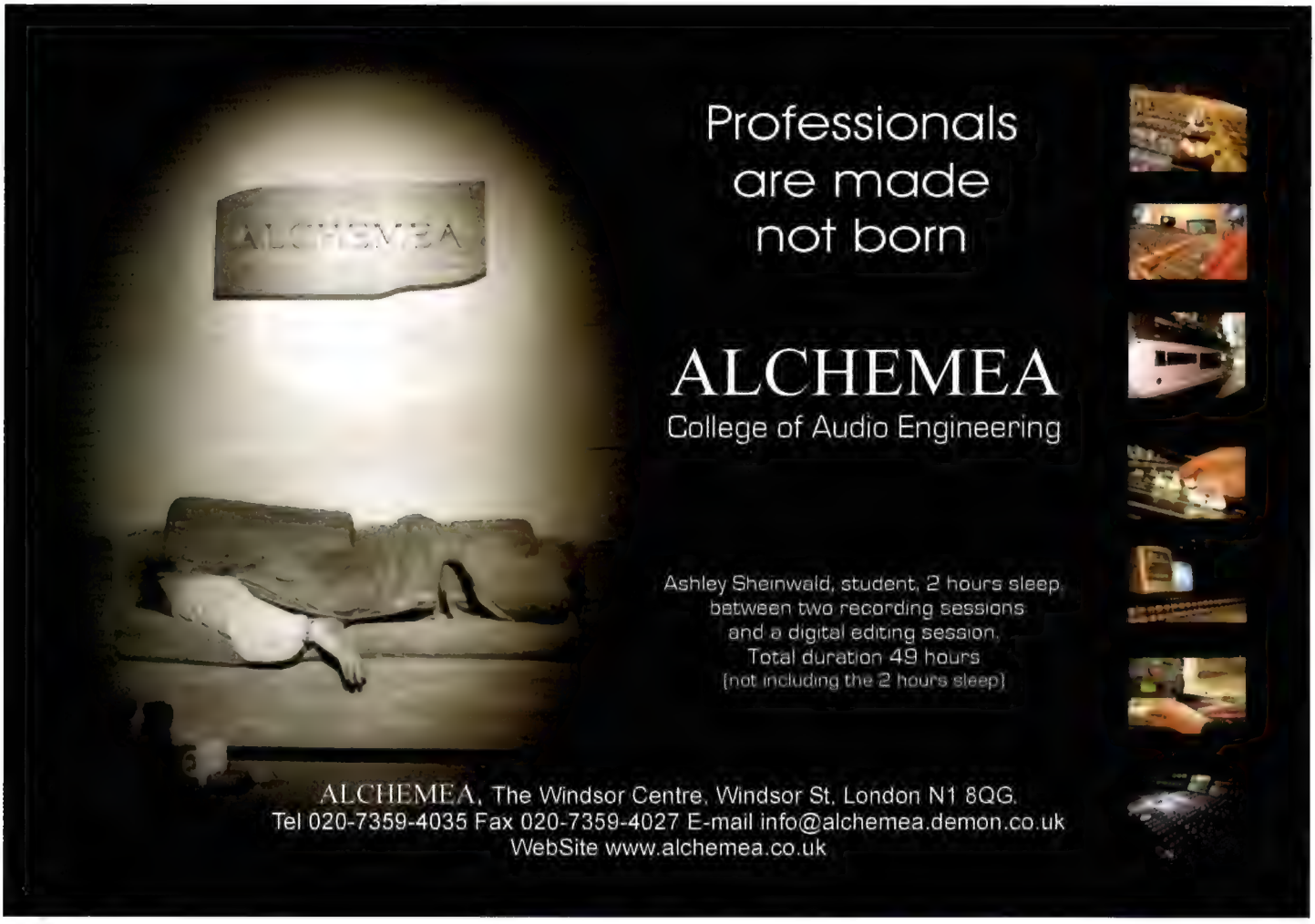
We knew this wouldn't be your average day out, and so it was no great surprise when Dennis arrived to collect us in a small boat and whisked us ten minutes up river to a small, secluded creek, the idyllic setting of Sawmills, explaining his connection to the studio along the way. "I'd been involved with the studio for a while before the opportunity came my way to take the reins, but the timing could have been better. '92 was a dreadful year for everyone in the industry. Record companies weren't signing new acts. They were at the peak of re-issuing CDs, so they were making huge amounts of money on back catalogue. Things just weren't developing – every key studio in the UK would tell you the same story.

"I decided to commit myself to it, neck firmly on the line, because we all had a lot of faith in the place. Within three months an old friend sent me a demo tape of a great young three-piece from Oxford, so we got them down here and recorded five tracks in three days. They turned out to be the first five tracks for *I Should Coco* by Supergrass. They didn't even have a name when they first arrived, and John Cornfield, Sawmills' house engineer, has subsequently worked with them on everything they've done in terms of singles and albums.

"Three weeks later we got a phone call from a guy in London who was tearing his hair out. He'd tried twice, unsuccessfully, to make an album for this band from Manchester and he wanted to bring them down here – this was just after we'd finished The Verve's first album. Anyway, this band were called Oasis, and they came down here and recorded *Definitely Maybe* in ten days. Obviously, two years later we realised the significance of what had happened."

Sawmills dalliance with the rich and famous doesn't begin there, though – previous heavyweights through the 'Mill include XTC, Robert Plant, Wet Wet Wet and even a two-week appearance by the Stone Roses to record the seminal 'Fool's Gold'.

According to Dennis, it's no accident people make great recordings here. "This place has got something special – a vibe. People find it a highly »



Multi-preset hardware MIDI control unit

You may have a struggle accessing the powerful features of your high-tech music gear, because of limited or difficult user interfaces. The new *Philip Rees* ***C16 MIDI Control Unit*** could help you get to grips with the hidden potential of your equipment.

The ***C16*** has sixteen 60 mm slider controls. The sliders may be assigned to a variety of MIDI control functions.

The assignments are held as one hundred built-in target presets. As the ***C16*** is a preset device you avoid the brain-ache of having to program it yourself, and you can quickly get stuck in to using it creatively. The large number of target presets means that is ready, out of the box, to do most of the jobs that you are likely to want it to do.

Typical examples of control functions provided include filter cut-off, envelopes, LFO and pan.

The target presets include *GM*, *XG*, *GS*, *AWE* and many popular synths including *JV-1080*, *Korg X-series*, *Matrix 1000*, *Proteus* and *Orbit*. The ***C16*** can generate all MIDI controllers and can control any MIDI slave where controller numbers are assignable. It also supports many control functions which require MIDI System Exclusive messages.

It is easy to recall one of the target presets. First, you look up its number. Then, holding down the TARGET SELECT pushbutton, you move sliders 4 and 5 until the two-digit LED display shows the correct target number.

The ***C16*** has one MIDI IN and one MIDI OUT. It automatically merges the MIDI data it receives with the data it generates.

If you ever need new slider assignments, you can program two of the target profiles using MIDI System Exclusive messages. We are going to provide, free-of-charge, a library of downloadable target profiles and a PC editor for generating user profiles. See our website for the latest information.

Functional simplicity

You usually select the MIDI channel (or sometimes the device number) with a no-nonsense sixteen-position rotary control. If you choose the *Quick Mixer* target, you get easy access to seven important controllers, including *volume*, across sixteen MIDI channels simultaneously.

The dimensions are 210mm x 135mm x 55mm, so it doesn't waste valuable work space. It has a built-in mains power supply. There's room on the front panel to name the sliders.

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Tascam DA88

Ampex ATR 102 1/2"

Soundscape

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AMS DMX 1580S, RMX 16

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price includes engineer, accommodation and food

creative atmosphere – it's intangible, you can't touch it. Often people arrive here and leave with an album they just hadn't written beforehand, so we're very lucky.

A leisurely tour around the facilities with Ruth Taylor, residential studio manager, reveals the extent of such luck. Seven bedrooms, a pool table, rowing boats and, above the studio, a very comfortable chill-out area, not to mention the incredible sense of seclusion.

"Unlike a lot of other studios, you really can make as much noise as you like here, and there's no noise outside to worry about, apart from the birds and ducks, so a lot of bands have recorded out front, on the lawn," – and utilized the famous Sawmills 'creek echo' in doing so, as Dennis tells us. "The joke we have is that you've got two or three parameters with the 'creek echo. One comes down to microphone placement, to get a certain delay, but in terms of reverb quality and reverb times you've got a 12-hourly adjustment. Every 12 hours, at a given point, it will be the same, because the tide is in or out. The other parameter is an annual cycle with the leaves on or off the trees.

"In fact, at the beginning of 'Richard III', on the second Supergrass album, just when the guitar amps are buzzing, if you listen very carefully, you can hear a couple of quacks. But that's part of the Sawmills sound as well – just another facet of the creek echo."

We hear a lot about the magic of Sawmills, but there's a very real figure behind most of their successes, house engineer and business partner John Cornfield, who we're lucky to catch in the studio. Fresh off the plane from Australia, where he's been recording a first album for some up-and-coming antipodeans, John reveals what is the quite often the key element behind many great recordings. "Just listen to what you're recording and get the sound right – that really is 100% of it. That, and getting the band to deliver it.

"You just have to experiment. Most of it's down to getting the sound right at source, fucking around with the drums and the subtlety of the guitars. I don't tend to EQ that much, so, gear-wise, you're talking about guitars and guitar amps, but again it's largely down to the musicians. You get people like Jackie Leven, for example – he uses a Strat, but just by adapting his playing style he can make it sound like anything."

A rack tower of Babel-esque proportions sports some tasty vintage outboard

Surrounded primarily by vintage gear, John's quick to justify his reasons for using tried and tested pieces of equipment. "Unless you look at the keyboard market, I don't think they've come up with anything that radical.

"We've got certain bits of equipment here that I'll use in preference to others. There's a large

To be or not to be (recording inside or outside) – that is the question at Sawmills

Those ever-so-cuddly Super Furry Animals: fun and games at the Mill

Photo: Ruth Taylor

The Verve's Richard Ashcroft (left) in pensive mood, with drummer Peter Salisbury

Photo: Ruth Taylor

When will I, will I be famous? Very soon, Noel, very soon

Photo: Angell Dust

The Bluetones taking advantage of the famous creek reverb

Photo: Ruth Taylor

selection of compressors and EQs, and valve EQs and valve compressors. They've all got their own sound, they've all got their job, but if you look at the technical specs you'd never buy them. They've got a characteristic sound to them – a very dirty sound. From a technical point of view, they're probably frowned upon, but they sound fucking great.

"A lot of the old gear does tend to have much more of a sound to it, whereas lots of the new gear all sounds much of a muchness – you know that *technically* it's a compressor, but you can't hear it. And I wanna hear it. You've got to completely overdrive them to make them freak out.

"We tried out a new compressor recently. It was a nice compressor, but I wanted to hear what it did when it was on the limit. So we cranked it up, and it just didn't sound very good, so I sent it back. When I put compression on something, I want to *hear* it.

"And then there's the [Trident] S80 console. A lot of people who've spent most of their life working on SSLs couldn't work on this – they just can't believe how much depth of sound there is. There are a lot of electronics in modern desks, whereas this is quite basic and it's got a great sound to it. We've looked at replacing the desk several times, but so far we've failed to find anything that gets us excited."

We're guessing here that John wouldn't consider a digital desk. "I still think they've got a long way to go. I do record digitally with Soundscape – but a digital desk? You've just got too many problems with them at the moment. Every process you put in a digital desk takes time to do, so it doesn't take long for your phase correlation to get into a mess.

"Even using the mixer in Soundscape I'm aware that with every plug-in I use the sound gets a little bit later. So if your desk is digital, you've got all that to contend with, because they don't automatically sort it out. I have looked at it, but I just think it's too early."

That confidence in analogue comes through when talking backup systems as well. "Nobody really trusts digital storage mediums yet. We haven't had them long

enough to know that they are safe, so for backup purposes we print everything to 2" tape. Even though I don't use it, all the masters are on tape. Because it's only for backing up, the tape doesn't wear out, because it only ever runs through when I print stuff to tape. So the 2" tape is actually in better nick than it would be if we'd tracked on it – especially if it takes about a year making an album. The degradation of 2" tape is quite noticeable, you know. It basically wears out, whereas doing it this way keeps the tapes in pristine condition. I don't have any qualms about recording onto Soundscape first and then onto tape.

"The majority of stuff these days is tracked onto tape, dumped in Pro Tools, sorted out, then dumped back on tape, so it's second-generation analogue as well. I just track it straight onto Soundscape and then dump it on 2". It works for me, and it seems to work for everybody else. I've done quite a lot of albums like that."

And it's the use of modern technology with the best of retro that typifies everything that Sawmills stands for – using the right tools for the job, as Dennis testifies. "The whole Sawmills thing is basically new-meets-old. We're 30 years old; we've seen a lot of studios come and go, but we survive, because we know the market. We know what it costs to put a studio together these days – admittedly, you can make very good sounds on modern technology with a small amount of money, and, if you know the limitations of the gear and use it to the max, you can get some very good results.

"Equipment and people are very important here, and always will be in a residential studio. We've had the same team here for over 10 years now. Even if you take that away you're left with an atmosphere, a vibe – that intangible element. It's either there or it's not, and I can only tell you what our clients tell us: Sawmills has an atmosphere, an ambience. It's that elusive X-factor, and that's something you just can't buy."

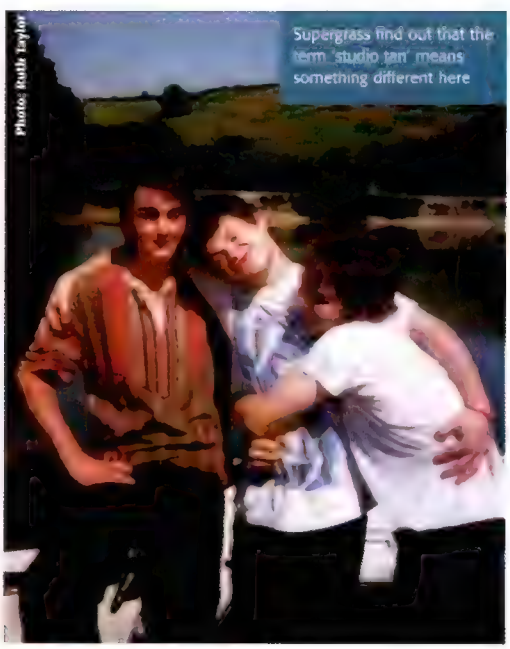
More from: Ruth Taylor, Sawmills Studio, Golant, Fowey, Cornwall PL23 1LP Tel: 01726 833338 Web: www.sawmills.co.uk

The Gallagher brothers take the air with Mark Coyle, co-producer of Oasis' debut *Definitely Maybe*

Photo: Anjali Dutt

Kenickie recorded sparkling teen-pop classics at Sawmills, then... split up

Photo: Ruth Taylor



Supergrass find out that the term 'studio tan' means something different here

Photo: Ruth Taylor

Never ones to 'walk away' from a recording session: Cast and company

Photo: Ruth Taylor

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Classic sounds: Mellotron

Take a trip down memory lane with *Trevor Curwen* and the original sample playback keyboard

You know the sound of the Mellotron. Think not? Bring to mind the distinctive opening bars of the Beatles' 'Strawberry Fields Forever'. Remember it now?

Although it has never really gone away, the Mellotron has enjoyed a resurgence in recent years. It's found favour with artists from Radiohead and REM to Led Zep, Genesis and Julian Cope. However, it was Oasis who brought the sound of the Mellotron kicking into Y2K. Their obsession with all things fab recently manifested itself yet again on their 'Go Let It Out' single from *Standing on the Shoulder of Giants*, which featured a Mellotron that was heavily reminiscent of the one used on 'Strawberry Fields'.

The Mellotron was, in fact, the forerunner in principle of our modern day samplers, albeit using what by modern standards looks like a pretty archaic electro-mechanical system. It utilized lengths of analogue tape to recreate the sounds of real instruments (including rhythms and accompaniment fills as well as lead sounds) and special effects. This was quite revolutionary in those pre-synth days when the only other polyphonic keyboards were organs and pianos. So potent was the Mellotron considered to be that the Musicians Union apparently tried to get it banned.

Although used at various times by Led Zeppelin and the Rolling Stones, and regarded in some quarters as *the* sound of progressive rock – making a defining contribution to the sounds of bands like the Moody Blues, King Crimson and Genesis – it is that haunting intro to 'Strawberry Fields' that most people associate with the Mellotron.

Those distinctive opening bars were played by Paul McCartney using the flute sound on the Mark II Mellotron. Besides the intro there is yet more Mellotron on the track. John Lennon played some downward swoops using the instrument's speed (pitch) knob, and made an off-the-wall contribution with some 'swinging flute' fills during the track's end section. Check out page 81 for the full story on how it all went down.

As for other examples of Beatles' Mellotron use, you only need check out the White Album. The flamenco guitar at the start of 'Bungalow Bill' is a Mark II fill.

The Mellotron – a history

Although the Mellotron is regarded as a British instrument, it was actually developed directly from an earlier American machine known as the Chamberlin Musicmaster, the design of which, in its earliest incarnations, was basically flawed.

Harry Chamberlin had been making his instruments since the late 1940s, but they were not without problems. Although some of the earlier models had internal steel frames, that idea was soon abandoned, leading to instability of the cabinet and consequent warping problems. In addition to this, the tape playback heads used were unmatched, resulting in inconsistent sound from key to key, and the unreliable tape shuttling mechanism was subject to a high rate of failure.

In the early 1960s Harry hired a salesman, Bill Fransen, to help increase his sales, but eventually Bill realised that although the instrument was sound in principle it needed more solid engineering to eliminate its inherent problems, and would benefit from having a consistent manufacturing base to increase production. Meanwhile, a Birmingham, UK-based firm called Bradmatic, run by the Bradley Brothers, Les, Frank and Norman, was engaged in manufacturing electro mechanical items and tape heads.

In his search to improve the product, Bill Fransen brought a couple of Chamberlins to England in 1962 and approached the Bradley brothers to make a set of 70 matched tape heads to be used in the instrument. Intrigued by the tape head order, the Bradleys met up with Bill Fransen to take a look at the Chamberlin. As a result, the two parties linked up to develop and improve the design and set up production of the new instrument, which was named the Mellotron.

The new manufacturing company set up shop in Streetly near Walsall and became Streetly Electronics, with Mellotronics Limited covering the

That sound on Oasis' latest single? Yep, it was the Mellotron again

The Mark II Mellotron was used by the Beatles

music recording and marketing side of the business.

As well as embarking upon the engineering improvements, one of the first tasks was to record new master tapes for use in the Mellotron. Fortunately, the well-known orchestra bandleader Eric Robinson was one of the company's backers, with plenty of expertise and contacts to help set up the recording sessions and source the musicians. Recording was a painstaking process using the technology of the time, and the rhythm parts, fills and lead sounds that comprised the Mellotron's repertoire were recorded over a period of months, with the master tapes being duplicated and assembled into the 42-foot lengths used by the machine at the Streetly factory.

The models

The Mark I Mellotron – basically a completely redesigned Chamberlin Musicmaster – became available in 1963, featuring two 35-note keyboards side-by-side. There was still room for improvement, though, and development work continued to iron out the flaws. In 1964 the Mark II made its debut, with most of the original Mark Is also being updated to the new model's specifications.

It was the Mark II, of which 300 were produced between 1964 and 1967, that was used by the Beatles. The left-hand keyboard has a selection of rhythms and fills, while the right-hand keyboard has 18 different lead instrument sounds including the 'Strawberry Fields' flute. A specialised sound FX version of the Mark II was also produced and was used extensively by the BBC to provide spot effects for its programs.

Although it may have been originally conceived as a 'home organ' type instrument, the Mellotron soon found its way into the hands of gigging musicians, and Streetly found themselves under pressure to produce a more portable alternative to the heavy (about 140kg) and bulky Mark II. What emerged was the Model 300, with a single 52-note keyboard which, although more compact than the Mark II, was still pretty hefty at around 100kg. In the end, this model turned out to have reliability problems.

The next major stage in the Mellotron's development was the Model 400, a much more portable instrument than previous models. Streetly's expansion of the tape library with 16 new instruments and the adoption of a removable tape frame to house the tapes allowed the sounds available in the 400 to be easily changed for an alternative set, giving it increased sonic versatility as well as portability. Users could also make their own recordings and get Streetly to convert them to Mellotron tapes for an individual sound set. The 400 became the best-selling Mellotron, with upward of 1,800 produced. There were several other models produced in small numbers, including the Mark V, basically a dual manual 400, but it's the Mark II and the 400 that have become the most recognisable of the Mellotrons.

Streetly lost the Mellotron name during legal wrangling after their US-based worldwide distributor went bust in 1977. This put them in the odd position of still building the machines but not being able to sell them under the Mellotron name. Their solution was to rename the instrument the Novatron, the name it still had when the company went out of business in 1986 after gamely trying to compete with the

How it works

The Mellotron is basically a keyboard sample playback machine that plays pre-recorded analogue tapes. Under each of the keys lies a length of analogue tape that is moved past a playback head whenever the key is pressed, with each piece of tape having a sound with a pitch that corresponds to the key's note. On release of the key the tape is pulled back to its starting position by a spring mechanism. The sounds only last for between seven and eight seconds, at which point the key has to be released and played again if the sound is to continue, making it impossible to play a sustained sound for more than eight seconds without a gap.

This limitation led to Mellotron players having to modify their playing technique to compensate by lifting individual fingers and shifting notes around within their longer sustained chords. When it came to recording, the Mellotron could be double-tracked to overcome the limitation, a technique used by Mike Pinder of the Moody Blues.

Others used different methods. King Crimson used two Mellotrons simultaneously (played by Ian McDonald and Robert Fripp), to allow the notes to overlap. They called their technique 'duelling Mellotrons'.

Mark II Mellotrons used 3/8" wide tape with three parallel tracks, each with a different sound. A track was accessed by a mechanical lateral movement of the tape head mechanism to the appropriate position, which was selected using the front panel track selector buttons. It was also possible to place the heads between two tracks to get a blend of two sounds.

Each 42-foot length of tape had six separate sections, or 'stations', which could be selected by the motor-driven tape shuttling mechanism. Each station had a different set of three sounds, so 18 sounds in all were available on each tape. With the 70 keys, this equates to 1,260 separate onboard samples.

The M400 also used 3/8" tape but dispensed with the separate stations. Other sounds were accessed via interchangeable tape racks.

CD info

track 08-09

Get ready to give your tunes a '60s-style injection, with this selection of sounds from *Michael Pinder Presents Mellotron* – including that famed 'Strawberry Fields' sound

. . . THE MIGHTY MELLOTRON

'Not So Much An Organ More The Sounds Of Life'

OUR Lancashire correspondent James Hartley recently enthused over the Mellotron installed in the Fabulous Queens, Cleveleys. Club managements and in fact promoters of all branches of entertainment will be interested to have further details of the capabilities of this remarkable instrument.

ALTHOUGH it looks like an electronic organ, sound is not produced by an oscillator but by the selection of actual recordings of instrumental sounds. It works in a manner similar to the memory system of a computer and the "programming" entails simple push-button selection of rhythm, backing and lead instruments.

THE MELLOTRON has 72 triple-channel recording tapes storing over 1,250 different sounds.

THE KEYBOARD is divided: the left-hand section gives 17 basic chords in any one of 18 different rhythms, giving the facility to accompany practically any melody. The appropriate chords can be chosen by a simple key chart. Furthermore it is possible to add a perfectly matched pre-recorded background by merely adding the octave. The right-hand keyboard provides the melody in any one of 18 different lead instruments—or a combination of two of them. Pitch control allows tuning to any other instrument. There are two loudspeakers and a stereophonic sound can be created. The instrument can also be used as an organ.

Back in the days, this beast was worth half a year's salary...

A FEATURE of the Mellotron is the fact that it can be played by anyone with a minimum knowledge of music. However, from the professional point of view the important thing is the enormous range of musical and sound effects which it can produce in the hands of a single skilled musician. It is a very flexible instrument. By replacing tapes it is possible to bring in new rhythms or a variety of musical and also non-musical sound effects.

THE MELLOTRON is clearly a most attractive proposition for club managements and in fact for most promoters of entertainment.

THE B.B.C. has a Mellotron in which all the musical tapes have been replaced by special sound effects—1,250 of them, any one of which can be selected in not more than 20 seconds.

THE COST of the Mellotron? Not as much as some might think. £1,000 buys the instrument and a double bench seat.

rising tide of compact and less expensive polyphonic synths.

Parallel to the Mellotron's progress in England, across the pond Harry Chamberlin quietly continued to develop his instruments. In 1970 he introduced the Chamberlin M1, a smaller instrument designed to sit on a tabletop. According to Harry, somewhere between 100 and 300 of these were produced up until 1981, although other sources put the figure at 125. With a motor-driven tape system rather than the long tape loops and springs of the Mellotron, the M1 used stereo heads to play back the eight tracks of sounds on its 1/2" tapes with 14 different sound combinations being available through blending the sounds. The Chamberlin still finds its way onto modern recordings courtesy of aficionados such as US-based producer Mitchell Froom.

Keepers of the flame

Streetly Electronics is back in existence, now being run by John (son of Les) Bradley and Martin Smith. Still based in the Midlands, they are kept busy servicing and renovating the population of remaining Mellotrons and usually have several for sale. They can provide a 400 for around £3,400, but should you want a restored Mark II the very least you could expect to pay would be £8,800. They also have a new range of sounds available. Contact Martin on 01889 504211. Web: www.vemia.co.uk/mellotron or http://members.aol.com/tronpage.

Over in North America, Calgary-based David Kean owns the Mellotron name and runs the Mellotron Archive. He can supply spare parts and new tapes as well as an Akai format CD-ROM of Mellotron and Chamberlin sounds. Check his site at www.mellotron.com.

Getting the sound

So how do you get hold of a Mellotron? As there were less than 2,500 produced, Mellotrons are not exactly commonly available on the used market. Due to the electro mechanical systems involved and the very nature of analogue tape, Mellotrons need to be regularly serviced to function correctly. While it's possible that there still may be undiscovered bargains lurking out there for a few hundred quid, the chances are that any such Mellotron will be in need of a thorough going-over, if not a full restoration, which is going to add considerably to the purchase price – you're talking in the area of £1,600 for a full restoration on a 400.

Mellotrons have a built-in amp and speakers but the best way to record them is generally regarded to be from their direct output via a DI box. Mark 'Spike' Stent, recording Noel Gallagher's Mellotrons for the latest Oasis album used this method, as well as miking the speakers with a Neumann U47.

To get the sound without the expense of owning an original machine there's always samples.

The Moody Blues: the group's 'Nights in White Satin' is stuffed with those magical Mellotron moments, courtesy of keyboard player Mike Pinder

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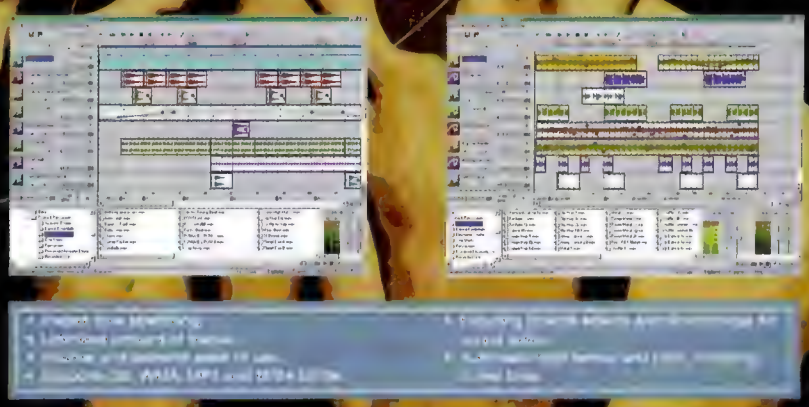

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NEW ISSUE ON SALE JULY 5TH

Veteran producer Tony Visconti is firmly of the opinion that a good Mellotron is a sampled Mellotron. To this end, he has sampled plenty of them, running the recordings through a Pro Tools rig with Antares Auto-Tune to even out the wobbly tuning that can result from the Mellotron tape's wow and flutter. In his view, using smoothly looped Mellotron samples (overcoming the 7-8 second playback limitation) played with all the advantages that a MIDI keyboard can offer, is the way to go.

In the days before sampling, Visconti's Mellotron recording technique was to triple-track the part, getting the keyboard player to play it three times – both ahead of and behind the beat – which went some way towards overcoming the pitch inconsistencies inherent in the wobbly sound of the tape. This technique also used extensively by Mike Pinder of the Moody Blues.

David Kean, who actually owns the rights to the Mellotron name, takes the alternate view: that Mellotron sounds are the last sounds on earth that need to be 'destroyed' by looping. His company, Mellotron, has produced a CD-ROM with exact-length samples of the Mellotron's pressure pad contacting the tape head for seven seconds.

Entitled *Michael Pinder Presents Mellotron*, the disc features samples taken from some of the best-kept instruments available and has a variety of classic Mellotron and Chamberlin sounds. Check out the box below for a chance to win one of these CDs.

Got a favourite track, album, sound or instrument that you'd like to know more about? Write to Petsounds, The Mix, at the usual address and we'll get our resident anorak on the case

Win a Mellotron sample CD

Michael Pinder presents Mellotron is an Akai format CD-ROM with 34 volumes of sounds from the Mellotron and Chamberlin. Former Streetly Electronics employee-turned Moody Blues keyboardist Pinder is ideally placed to be the public face behind this venture as he is widely regarded to be the main exponent of the instrument.

The sounds were sampled directly from well-maintained Mellotrons, with each key individually sampled for its total seven to eight seconds playing time. The first eight volumes are sound banks from the Mellotron MK II, comprising violins, brass, strings/brass, trumpet/trombone, saxophone, organ, electric guitar and vibes. Other Mellotron banks include flute, cello, viola, 16 violins, string section, 8-voice choir, boys' choir, half-speed brass and M300 strings.

In addition to these, there are a good selection of the rhythms and fills from a MK II and ten sound banks from the Chamberlin, including cello, flute, three violins, oboe, tenor sax, alto sax, trombone, trumpet, female voices, male voices and bass clarinet.

Sounds are spread over 35 notes from G to F emulating the original instrument, and no attempt has been made to loop the samples for indefinite sustain, so what you get is the authentic seven to eight seconds of sound. The sounds are as they come in their warts-and-all glory, which means that there's a bit of hiss and the pitch wobbles a little on the sustained sounds, but that is the character of the instrument and is endearing rather than annoying.

It also makes for a rich textured sound when playing chords. Each Mellotron soundbank takes up around 16Mb of memory, so with a 32Mb sampler and two sound banks loaded, its an easy process to layer two sounds together as on the original machine.

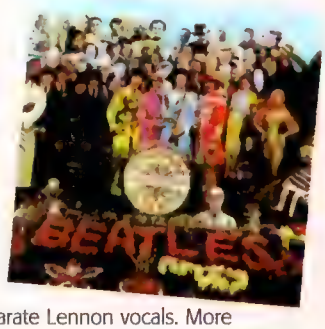
There are probably plenty of us out there who would love to own an original Mellotron but will never get the chance. This CD-ROM may be the closest we'll get to the playing experience and the sound.

Price: US $199
(plus £8 shipping to UK)
More from: Mellotron, 111 Lake Wapta Rise SE, Calgary AB, Canada T2J 2N1
Web: www.mellotron.com

We have two copies of *Michael Pinder presents Mellotron* to give away. All you have to do is answer the question below on a suitably mellow postcard and send to *Mellotron Compo, The Mix*, at the usual address. Entries must be received by 30 September 2000.

The question: Name the recent Oasis single that featured a Mellotron:
The choices:
(a) 'Go Let It Out'
(b) 'Go Let It Rip'
(c) 'Strawberry Daiquiries Forever'

November 24, 1966: Abbey Road Studios in London. The Beatles, after a five-month break from the studio, convene to make a start on a new album – the follow up to the groundbreaking Revolver.



The new album would eventually become the acclaimed *Sergeant Pepper's Lonely Hearts Club Band*, but the first track recorded, John Lennon's 'Strawberry Fields Forever', was destined not to be on the album and was instead released as one side of a double A-sided single (with Paul McCartney's jaunty 'Penny Lane' on the other).

The first version of the track (Take 1) to be recorded was destined not to see the light of day until the *Anthology* series was released some 30 years later, but this was the band's first use of the Mellotron.

Monday November 28 saw the Beatles attempt another version of the song. This was the version with the distinctive Mellotron opening passage, which had been written Take 1 was recorded. At this stage, recordings at Abbey Road were still being captured on a pair of 4-track machines, with tracks bounced between the machines to build up the production, so a mix of several instruments had often to be committed to one tape track.

George Martin recalls that on the original 4-track, the first track contained the drums, Mellotron and maracas, track 2 was dedicated to electric guitar, while track 3 had bass guitar and more Mellotron bits. John Lennon usually liked his voice treated in some way. For 'Strawberry Fields' his vocals were recorded over a sped-up backing track so that they would be a semitone lower and warmer sounding when the tape was played back at the correct speed. The best take of this new version of the song was recorded on the 29, overdubs and all, and was known as Take 7.

On Thursday December 8 the Beatles attempted a third version of the song, as John Lennon was not completely happy with what had gone before. This time, George Martin was to score cellos and trumpets. The backing track for this new version was to be put down on Thursday 8, but as Martin and engineer Geoff Emerick were committed to attending a film premiere, it was inadvertently left to technical engineer Dave Harries to start the recording session.

The duo returned to find the band and associates laying down a heavy rhythm track with drums, timpani and bongos that was much faster than Take 7 version. 15 takes were eventually recorded and two of those, the first 75% of one and the last 25% of another, were edited together to make the final backing track, which was mixed down to one track of another 4-track tape and called Take 25.

Overdubs now took place onto this backing, including the backwards hi-hat part which had been meticulously worked out and then recorded normally against the reversed backing track so that it would come out backwards when the tape was played back correctly. George Harrison's Indian table harp (swordmandel) glissandos were also recorded. Four trumpet and three cello players recorded parts on December 15, followed by two separate Lennon vocals. More vocals and another piano track were added on December 21, with the finished track being known as Take 26.

Although the tale has been told many times, there may still be a few out there who don't know about the edit in the final mix of the song, so here we go again...

John Lennon was not really hearing what he had envisaged for the song in either of the two finished versions of the song. Neither one in its entirety satisfied him, but he liked the idea of starting with one version (Take 7) and finishing with the other (Take 26) and asked George Martin to fix it – not an easy task considering that the two were in different keys and at different tempos [*what, you mean they didn't have a Variphrase sampler? – Ed*].

On December 22 George Martin and Geoff Emerick attempted the seemingly impossible, but actually found that by considerably slowing down the faster Take 26 they could get the pitch of the two versions to match, and once a good edit point was found in the song the two versions were joined together to make the final mono mix. The stereo version was finished on December 29.

The edit point is at one minute into the song between the words 'I'm' and 'going', exactly where the Mellotron stops. And for anyone who might be wondering about the fade out/fade in in the song's coda, it's there to neatly disguise the fact that the rhythm falls apart at that point.

After Take 26, George Martin thought the song was finished – but how wrong he was.

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D.I.Y. plug-ins

Creating digital audio plug-ins is simpler and quicker than most of us would ever imagine – and you don't need to be a genius, a mathematician or an anorak to do it. Over the next two issues of *The Mix*, we'll show you exactly how...

words **Jezar Wakefield**

part one

about the author

Jezar Wakefield started in the music industry as Paul Weller's studio engineer in the days of The Style Council. He went on to work in the Sound Department of Pinewood Film Studios, and later joined Psion Computers as Head of Product Software. Jezar now divides his time between his hi-tech design consultancy, Dreampoint, and running his own 24-track project studio in West Hampstead, London.

CD info

tracks 01 & 10

Get inspired with our specially-selected collection of 37 of the best free plug-ins around, then hear our DIY filters in action

Just a few short years ago, creating digital audio products was extremely difficult. Why? Because for CD-quality digital audio, you have to process 44,100 samples for both the left and right-hand channels simultaneously – that's over 88,000 calculations a second. What's more, you have to do this instantaneously with no perceptible delay in the sound reproduction. Computers of old lacked such powers; however, over recent years, desktop computers such as the PC or the Apple Mac have become equipped with processors so fast that they can process digital audio in real-time - even though they aren't designed specifically to do so, and now we are talking about processing hundreds of thousands of samples a second – not just for a stereo mix – but for all the separate instruments as well.

Recognising this, Steinberg created VST – their Virtual Studio Technology, in 1996 – which created an easy way to pass sound between parts of a system. The Steinberg standard makes digital audio plug-ins extremely easy for programmers to create, and what's more, the specialised tools are now available for free on the internet – and you don't have to be a genius to use them.

There are, of course, other standards. Some are proprietary to a particular piece of software, while others are more general. Microsoft's Direct X standard is Windows-based, so you will need to learn at least a little Windows programming if you want to create DirectX plug-ins. Companies like Sonic Foundry and Cakewalk now supply free software development kits for download from the net, which makes the process much easier. Creating these pretty graphics, dials, and knobs for DirectX plug-ins is time-consuming – and that's often what you're paying for when you buy expensive plug-ins.

In this article, we will be looking at writing Steinberg VST plug-ins because the information is the same irrespective whether you are using a Macintosh or a PC, and you don't need to learn how to make a user interface – VST does this for you automatically.

No advanced maths

Over the last few years, academics have been having a terrific time playing around with digital audio, and the last thing they want is ordinary people like you and me coming along and spoiling their fun. That's why if you consult a book on digital audio processing, you will find the mathematics looks very scary. But most of the maths you see in those books is related to scientific analysis of the results rather than creating the effect. So let's leave the maths to the mathematicians, and get on with what we're really interested in – what these things actually sound like.

Perhaps it may come as a surprise to you to discover that things that are difficult to do at high-quality in the analogue world are often very easy to achieve in digital systems running on an ordinary desktop computer. After all, digital audio processing is just taking a set of numbers that you can add, subtract and multiply as easily as you can do your weekly shopping.

What's more, you don't even have to understand 'bits' and 'bytes' to write plug-ins, because digital audio plug-ins use ordinary, floating point numbers, and not the primitive '16-bit' and '24-bit' numbers that your computer's soundcard will use to turn the digital numbers back into sound. Digital audio plug-ins just take a long list of conventional numbers, do a little bit of maths, and store the resulting numbers in another list. Your computer will take care of complicated issues like timing and synchronisation of the sounds. It's easy!

Here are the basics:

- To mix two sound samples, you simply add them together
- To mix two sound samples out of phase, you just subtract the samples from each other
- To change volume, you multiply – so multiply sample values by two to double the sound level, and multiply by 0.5 to halve the volume level
- To create a delay, you can just store the samples in some memory and play them back when you want to

Even effects like equalisation are achieved by mixing delayed samples together. The filter plug-in we will build in this article shows an example of this.

Tools required

You will need a C++ compiler for your computer. Plug-ins use C++ because this computer language is particularly suited to allowing multiple instances of your plug-in on different tracks of the user's multitrack recording, and also because the code is efficient. It is possible, theoretically, to use another language, but other popular languages such as (for example) Basic and Java are often 'interpreted', and this makes them far too slow to write real-time audio plug-ins for systems like Cubase VST – at least for the time being.

You don't need to be a C++ expert to write a plug-in, because not very many C++ features are used when writing them. It is very helpful, though, if you have at least a little previous knowledge of the C language. If you are just learning to program, writing plug-ins is a good way to get started, because compared to other sorts of programs, they are relatively simple to write, and of course, extremely useful too.

The recommended C++ compiler for the PC is Microsoft Visual C++ 6.0, and for the Macintosh, Codewarrior. It is possible to create plug-ins using other C++ compilers. For example, you can use the cheaper 'Standard' version of the Microsoft compiler mentioned above, although this version does not come with the optimiser that is important for more complicated plug-ins. You can also use the 'Discover Programming' version of Codewarrior for the Mac, but you are not allowed to sell any software made with this version. If you're planning on using a different C++ compiler altogether, be aware that it can be very difficult to configure other systems to build the Steinberg example plug-ins properly.

Creating your first plug-in

Download the VST development kit from the Steinberg website at www.steinberg.net/developers/VST2SDKAbout.phtml, unzip the file, load the examples into your compiler, set up your system so that you can build the examples supplied by Steinberg and test that they work properly in your music software. You must copy the DLL files that your compiler builds into the 'VST plug-ins' folder on your computer before you can use them in your audio software. If you forget, you

might be testing a previous build of your plug-in, rather than the one you are currently working on.

To avoid this kind of confusion, I prefer to change the compiler settings so that it puts the final plug-in directly into the 'VST plug-ins' folder automatically each time you build it. You might need to close down your music software when you are compiling your plug-in, as the compiler won't be able to delete the old version of your plug-in if it is still in use.

If you have the recommended compilers, it should quite literally take only a few minutes to get going with the examples supplied by Steinberg. Make sure you keep a separate copy of the files in the development kit, as we are going to be modifying the files from the simplest example supplied with the kit, and you will want to make sure that you can go back to the original files if you mess it up.

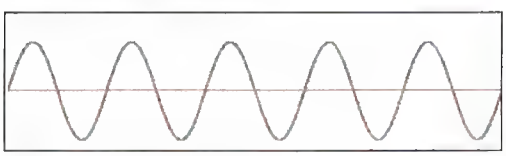
The 'Gain' plug-in is the example we will be modifying. This is a very simple plug-in, and consists of just a single slider that turns the volume down to nothing, but – although it is simple – it works both in mono and in stereo, as does the simple 'filter' plug-in we are going to create.

When creating a new plug-in, it is always easiest to start with the code for an existing plug-in similar to the one you are trying to create, and then convert it piece-by-piece into your new code. This is the fastest and most reliable way of creating a plug-in, and means that you can check periodically to make sure you've not broken anything in the process. When it is up and working properly, you finish off by stripping out any remaining pieces of the example that are no longer needed, and re-test it.

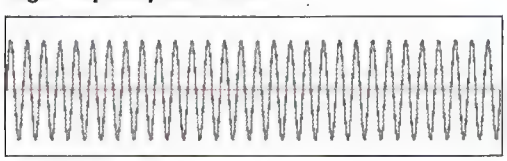
A simple filter plug-in

In this example, we will create both a simple low-pass filter and a high-pass filter by modifying the 'Gain' example in the Steinberg SDK. But first, let's look at look at what the problem of filtering is and how we can go about solving it. Consider what happens with a waveform that consists of both low and high frequencies mixed together:

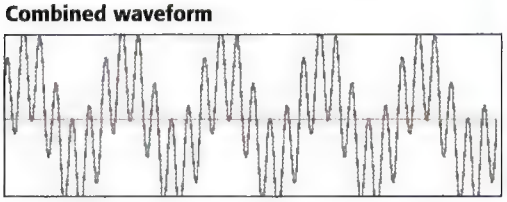
Low frequency waveform



High frequency waveform

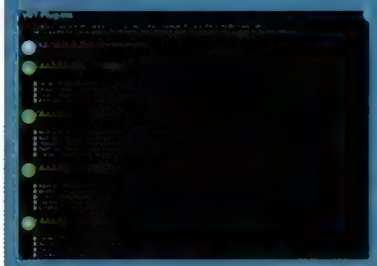


Combined waveform

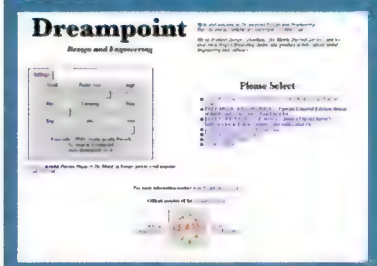


Free plug-ins on the net: some starting points

For a compressor, limiter, de-esser, flanger, and amp simulator (along with 17 other free effects!), try Maxim at www.abel.co.uk/~maxim/index.htm

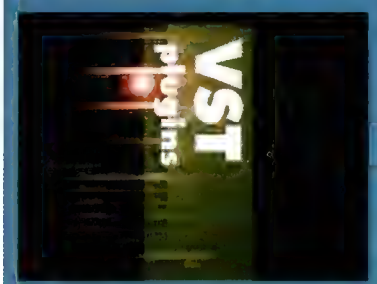


For reverb, there's my own Freeverb at www.dreampoint.co.uk which also comes with source code



A multi-stage phaser, as well as an unusual waveshaping distortion plug-in can be found at Smart Electronix: www.smartelectronix.com

For a Macintosh chorus, a delay, and an exciter go to Greenoak at: www.greenoak.com/vst.html



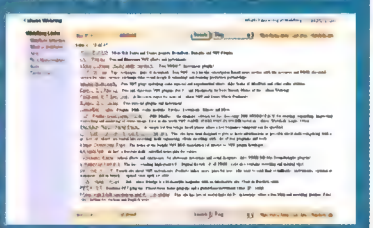
For a PC Chorus go to www.sonicspot.com/xchorus/xchorus.html For a fascinating (and extremely pretty) tape loop echo machine as well as an attractive virtual bass guitar, go to Steinberg at www.steinberg.net/infocenter/discoveries/freepl ugins/index.phtml

For an extremely fierce band-cut filter and a remarkable humaniser effect, along with 14 other interesting plug-ins, go to:

www.multimania.com/jeje1999/plug.htm Although the instructions are in French, it's not difficult to guess how to use these plug-ins

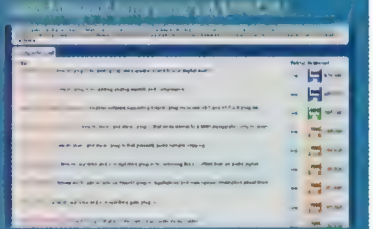
For an attractive and free graphic equaliser, visit DSound at: www.dsound1.com

To find websites with other free VST plug-ins, visit the Cubase Web Ring at www.webring.org/cgi bin/webring?ring=cubase;list



To find a list of free DirectX Plug-ins, go to The Direct X Files at: www.thedirectxfiles.com

As well as the freeware plug-ins, there are also a large number of shareware plug-in packs that cost just a few pounds for bundles with a large number of different plug-ins in them. Follow the last two links in the list above, or see the download pages at The Sonic Spot at www.sonicspot.com/daplugins.html and Shareware Music Machine at



Andy Hughes & Ric Peet
MASTERCLASS 2000

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	7th - 11th August		21st - 25th August	
protools 24/mix plus	7th mon 8th tues	£198.00	21st mon 22nd tues	£198.00
Emagic Logic Platinum	9th wed	£99.00 p/d	23rd wed	£99.00 p/d
Korg Ms2000	10th thur	£99.00 p/d	24th thur	£99.00 p/d
Final Mix Day	11th fri	£99.00 p/d	25th fri	£99.00 p/d
Total to Pay		**£495.00 £581.63 (inc vat)**		**£495.00 £581.63 (inc vat)**

Ric Peet Masterclass

	14th - 18th August		28th - 1st September	
protools 24/mix plus	14th mon 15th tues	£198.00	28th mon 29th tues	£198.00
Emagic Logic Platinum	16th wed	£99.00 p/d	30th wed	£99.00 p/d
Korg Ms2000	17th thur	£99.00 p/d	31st thur	£99.00 p/d
Final Mix Day	18th fri	£99.00 p/d	1st fri	£99 00 p/d
Total to Pay		**£495.00 £581.63 (inc vat)**		**£495.00 £581.63 (inc vat)**

Looking at these pictures, it's easy to see what part of the combined waveform is made of the low frequency and which part is made of the high frequency. If I hadn't even showed you what the original waveforms were, but instead I had asked you to guess what they were and draw them on a piece of paper, you'd probably have got the answer right.

But the problem is: how can we mathematically remove either the low or high frequencies? You don't need to understand any maths to see that what we must be trying to do is to smooth the waveform to get rid of the jagged high frequencies. We need to somehow 'average out' the samples to smooth it. We can't just average all of them, or we'd just end up with a straight line (all digital audio moves around a centre line). We only need to average out a few samples to eliminate just the very high frequencies. The more samples we average, the more high frequencies we remove. But we also need to do this gently, in order to give a soft, gradual, rolloff of the high frequencies.

Fortunately, this is extremely easy to do in practice. All we need to do is to 'smear' the signal by copying samples backwards over themselves, by storing the previous sample and then mixing it with the original, with some feedback (like a digital delay, except we are only delaying by one sample). If we can change how much feedback there is, that will control how much 'smearing' and frequency rolloff we get – it will form a sort of rolling average of the sound sample values.

We will need two gain controls. One will control the amount of feedback the single-sample delay has, and the other one will control how loud the plug-in is. Also, as you can imagine, the more feedback we have, the louder the signal will become. That's why we need an overall gain control to balance this out – the more feedback we have, the less input signal we need to feed in.

This could be hard for the user to control, but we can use the one gain control that we already have, and let it control both the input gain and the feedback, in opposite amounts. Seeing as the input gain simply goes from 0.0 to 1.0, we can control the feedback gain by the simple formula '1.0 - gain'.

Here's how simple the code is in practice. Firstly, in the **again.hpp** header file, add the following declaration just underneath the line that says **float fGain**;

```
float delayleft;
float delayright;
```

Those will give us somewhere to store a single sample for each of the left and right channels. Then, at the top of the file, add the following line of code just after the line that says **#include "audioeffectx.h"**:

```
#define undenormalise(sample) if(((*(unsigned int*)&sample)&0x7f800000)==0) sample=0.0f
```

I'll explain what that's for in a moment (important note: the above line of code *must* be typed on a single line with no break in it). Next, in the file that actually does the sound processing – **again.cpp** – modify the main loop in the **processReplacing** function, so that it now looks like this:

```
while(--sampleFrames >= 0)
{
delayleft =  *in1 * fGain + delayleft * (1.0f-fGain);
delayright = *in2 * fGain + delayright* (1.0f-fGain);
undenormalise(delayleft);
undenormalise(delayright);
*out1++ = delayleft;
*out2++ = delayright;
in1++;
in2++;
}
```

Modify the process function in a similar way – except change the two 'output' lines of code shown above, so that they look like this:

```
*out1++ += delayleft;
*out2++ += delayright;
```

Notice the difference? The process routine uses **+=** instead of just **=** because it mixes the sound with any sound already in the output buffer instead of replacing it. Compile this plug-in, and try it out in your audio software. Notice that when the control is at the very bottom end, the sound is so filtered that nothing comes out at all. When the control is at the other end, the sound is not affected in any way.

The code works in a very simple way. Let's look at it step-by-step, starting with the first line in the loop:

```
delayleft =  *in1 * fGain + delayleft * (1.0f-fGain);
```

The right-hand channel is similar. What this code does, is to take the sampled input, adjust its volume according to the gain control, and mix it with the previous sample at a gain set by the opposite direction of the gain slider.

We store the result in the delay variable, as it will be used next time around the loop. This process 'averages' out the samples (depending on the blend of the mix between original and delayed samples), and so 'smooths out' the high frequencies.

Then, the special **undenormalise** macro function rounds samples down to zero if they are very, very small. Desktop computers can't handle the processing of a lot of extremely small numbers quickly enough, and your computer may crash if you don't undenormalise any numbers that feed back on themselves, such as our **delayleft** and **delayright** variables above. Next, the code

```
*out1++ += delayleft;
```

simply copies our sample to the output, and the **++** moves the pointer variable **out1** to point to where we will store the next sample in the loop. We do the same for the right-hand channel as well. Finally, the code

```
in1++;
in2++;
```

just moves the input pointer variables **in1** and

Delivering the goods

Before you spend too much time writing any kind of plug-in, take time to search the internet to see what shareware or freeware plug-ins are already out there, otherwise you may be wasting your time. There's little point in spending a long time creating (for example) a sophisticated chorus or delay plug-in – and hoping to charge a lot of money for it – when there are so many excellent ones already available from the net for free. The *Free Plug-ins* box on page 85 is a good starting point.

If you are hoping to make money from writing plug-ins, then you will have to be imaginative, and either create an old effect in an interesting new way that sounds very special indeed, or try to create something unusual that nobody has thought of before. If you intend to charge money for your plug-ins, then be prepared to put in a lot of extra effort to create a user interface that is simple and intuitive to use, and which has stunning on-screen graphics, because this is what people expect.

Help is at hand

There are many sources of information available freely on the internet to help you write plug-ins. As previously mentioned, the Steinberg VST Plug-in Development Kit is available for free download from www.steinberg.net. If you want to write Microsoft DirectX plug-ins instead, then the Cakewalk DirectX Visual C++ 6.0 Wizard is the simplest and can be obtained from The DirectX Files website at www.thedirectxfiles.com, or try the Sonic Foundry DirectX Development Kit, available from www.sonicfoundry.com.

There are also a large number of academic and enthusiast websites which discuss digital audio programming techniques in general, such as http://shoko.calarts.edu/~lmiboy/musicdsp/dspsource.html and http://users.iafrica.com/k/ku/kurient/dsp/algorithms.html. A simple internet search will find many others like these.

One of the most interesting places to search for information about digital audio processing is the IBM Intellectual Property Network at [illegible]com. Here, you can check the patents database to find out how your favourite big-name manufacturers achieve their effects mathematically, and although you're not allowed to copy their techniques, you can certainly learn a great deal by studying them.

Additionally, patent applications often contain detailed technical discussions of commonly-used techniques that you can use in your own plug-ins. It's well worth a look.

in2 to point to the next left and right channel samples to process next time we go around.

Naturally, the labels on the gain control and the 'dB' label in the user interface aren't right for this type of plug-in, and you might like to change them, by modifying the appropriate bits of code – it's obvious what needs doing if you take a look.

But what about making a low frequency filter – one that rolls off all the bass? It is possible to design a different filter system to do this, but by far the quickest and easiest is just to use a little trick. If we mix the original input signal out-of-phase with the filter, then the results of the filter get cancelled out, and we turn our original high-frequency roll off filter into a low-frequency roll off filter.

Simply change the two 'output' code lines in **processReplacing** into this:

```
*out1++ = *in1-delayleft;
*out2++ = *in2-delayright;
```

and of course do the same in the process routine, using **+=** instead of **=** as described earlier.

So now we have created two simple and effective filters. You might like to try enhancing the plug-in so that it contains both types of filter, so that you can play with both filters at the same time.

Of course we haven't discussed how to display meaningful values for the controls in the user interface, and we haven't discussed the implications that different sample rates will have on the plug-in, but we can leave these little bits of complexity for now. For the moment, we just want to demonstrate the kinds of things you can do in a plug-in without getting bogged down with specific details.

Making the plug-in unique

So far we've made two different types of filter plug-ins. However, we have made these simply by playing about with the code in the one **Gain** example supplied by Steinberg. If you want to make and use these plug-ins separately you need to make them unique, so:

- Copy the main source code files (**again.hpp, again.cpp and againmain.cpp**) to a new directory and rename them to reflect the name of your plug-in
- Create a new C++ project file for your compiler, based on the 'Gain' example, but named after your plug-in and using the copies of the files you created in the step above
- Change your compiler's setting to rename the final plug-in (eg instead of 'gain.dll', make it 'MyFilter.dll').
- Go through all the source code, and rename each and every instance of 'AGain' to instead reflect the name of your plug-in (e.g. change every occurrence of 'AGain' to be 'CFilter'). You can use Search and Replace in your C++ compiler system to help you do this.

And it's finished! This low-pass filter was created in a matter of minutes

If you've modified other kinds of computer example code before, then you'll no doubt be very familiar with this process. It takes some time, but by looking at the other examples in the Steinberg development kit, it should be clear what you need to do. It's a bit of a boring job, but it has to be done.

After you've done this, the last important change is that you need to change the 'Unique ID' that each plug-in has. The software system will use this to identify each different type of plug-in that is loaded. No user of the software will ever see what this ID is, so you don't need to make it particularly obvious. The aim is to invent any four-letter code that is unlikely to have been used by anyone else yet. Simply change the following line of code in the constructor function of your class, and make it different in every plug-in that you write:

```
setUniqueID('WYXZ');
// change WXYZ to something else
```

If you are going to give your plug-ins away to other people (even for free), then you should still contact Steinberg, who will warn you if the ID code is already in use by someone else. If it isn't, they will update their records to ensure that no-one else uses your code.

Finally, make sure that you test your plug-ins on every system possible. You don't need to buy them, as most manufacturers provide save-disabled demo versions - and if you regularly read *The Mix*, you will already have obtained many of these from past cover CDs. You can start them up, quickly insert a sound file, and test your plug-in. If the audio software you're testing is a Windows program and only supports DirectX, you can get VST to DirectX converters from www.fxpansion.com and www.spinaudio.com.

Summary

Hopefully, I've shown in this article that writing plug-ins is a quick and easy process, and that you can be up and running literally within minutes of downloading a development kit. The vast majority of studio effects – distortion, delays, EQs, phasers, flangers, choruses, pitch-changers, vocoders, ring-modulators and the like – can be created relatively quickly. You won't need to learn any specialised maths unless you intend to do something very ambitious such as create an auto-tune, a mic modeller, or some equally advanced plug-in.

If you want to develop plug-ins for another kind of system other than VST (such as DirectX), then the code shown here will work just as well, with just a few small changes. The main difference is in how the user interface is coded and controlled, and occasionally the form in which you receive the samples may be slightly different, but these are really just details, albeit ones that can take a little while to figure out. Even if you intend to release a plug-in for a system other than VST, you will almost certainly find it much easier to create a VST version first – even if only for your own use – and once you have perfected it, port the code over to the other system afterwards.

In Part 2, we will create a pro-quality studio reverb using just a few lines of code. Thanks to Steinberg for the VST development kit and to Jon Watte for the denormalisation macro.

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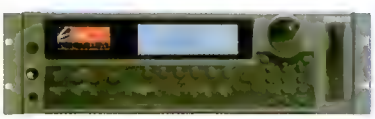

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You can get the latest competition information on the Miller Genuine Draft Undiscovered Originals website on www.intermusic.com/undiscovered Check out the listings below to find your local Yates's Wine Lodge.

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Mansfield - Monday 24th July • [illegible] - Tuesday 25th July • Leamington Spa - Wednesday 26th July
Cheltenham - Monday 31st July • Swindon - Tuesday 1st August • Newport - Wednesday 2nd August
York - Monday 7th August • Newcastle-Upon-Tyne - Tuesday 8th August • Darlington - Wednesday 9th August
Sutherland - Thursday 10th August • Norwich - Monday 14th August • Colchester - Tuesday 15th August
Guildford - Wednesday 16th August • [illegible] - Monday 21st August • Sheffield - Tuesday 22nd August
Preston - Wednesday 23rd August • Slough - Monday 28th August • Harrow - Tuesday 29th August
Maidstone - Wednesday 30th August • Blackpool North - Monday 4th September • Bolton - Tuesday 5th September
Bolton - Wednesday 6th September • Wrexham - Thursday 7th September • Taunton - Monday 11th September
Plymouth - Tuesday 12th September • Southampton - Wednesday 13th September • Hanley - Monday 18th September
Dover - Tuesday 19th September • Solihull - Wednesday 20th September • Luton - Monday 25th September
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REGIONAL FINALS

[illegible] - Monday 2nd October
[illegible] - Tuesday 3rd October
[illegible] - Wednesday 4th October
Warrington - Thursday 5th October
Bristol - Monday 9th October
Portsmouth - Tuesday 10th October
Southend-on-Sea - Wednesday 11th October
Nottingham - Monday 16th October
Coventry - Tuesday 17th October
Reading - Wednesday 18th October
Croydon - Monday 23rd October
Romford - Tuesday 24th October

SEMI FINALS

NORTH - Blackpool South
Monday 6th November
NORTH WEST - Manchester, Portland Street
Tuesday 7th November
SOUTH WEST - Swansea
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Thursday 9th November

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Luke Cunningham
Label Manager, Freedom 4

Sam Winwood
A&R, Sony S2

Sil Willcox
MD, Cruisin Music

HAZE
SERVING SUGGESTION

TM: 'DEF', the first track on this five track demo, initially sounds like a cross between the theme tune from *Knight Rider*, the darker side of Fluke and some poppy elements of Leftfield. Doesn't sound like an instant grabber, does it? And it's not. But after further listening, Haze's concept becomes clearer. It's all pretty dark and hypnotic, in a cinematic way. And it's all put together on little more than Cakewalk A2000 and an MC303 – impressive. As for the demo as a whole, and that really is the only to approach it; very odd, slightly warped and possibly a little sample-heavy spring to mind. But what the hell. There are a lot of people who haven't been held back by that. In fact, the whole of this demo is very cinematic – Haze may well work great in experimental films or installations. Maybe they should try to hook up with some up-and-coming film directors.
Sam: Didn't grab me.
Sil: Competently produced and arranged but probably better placed with film companies than record companies.
Luke: Warped, strange, odd, and yet quite alright, actually.

More from: haze@conerecords.freeserve.co.uk

HOODLUM
DEMO

TM: This geezer certainly grabs your attention with opening track 'The Sweetest'. The 'Sweatiest' might be more applicable, though! If you thought the 150-plus bpm motorway was only open to drum 'n' bassers, then think again. Hoodlum has broken the rule. Try slowing the whole thing down and it will sound a lot more soulful. That said, you'll need to keep an eye on that timing – it gets a little out at times. But the soulfulness leads us nicely onto the rest of the demo, and 'Hurry Back' in particular, which, despite its obsessive desire to be Air's next 'Sexy Boy', is a deftly produced track with all those elusively mesmerising timbres in place.
Sam: If the track's going to be this fast, make sure the playing is in time. Vocals are weak as well. Nice tune, though.
Sil: A refreshing change from the rest of the bunch, but not without some criticism. Would have made its case stronger if it was slowed down and the lead vocal was worked on, but otherwise quite interesting.
Luke: Please make it stop! It sounds like M People doing a tampon ad.

More from: Hoodlum Tel: 01442 263960

MFT
MEMORIES FOR TOMORROW

TM: 'For Together' combines the sultry elements of Sade's vocal delivery along with the production sensibilities of the likes of Brand New Heavies or JTQ and the whole Acid Jazz stable. This builds over a couple of minutes with lilting vibe melody line, hypnotic bass, beautifully grooving drums and some genuinely gorgeous vocals and live sax. It all cruises along with charisma and an abundance of style. And then it stops, leaving you wondering where the bloody song vanished to! 'Fearless Smiles' has an equally addictive groove, and more structure to boot. And that is the area that these guys really need to hone.
Sam: Pleasant enough tune, but it doesn't really go anywhere.
Sil: A great voice delivering performance around a well-produced track. However, I did feel the arrangement could have brought more continuity to the melody line as there were too many breaks in the lyrics. The rhythm section was very tight and all over reminded me of early Brand New Heavies..
Luke: The vocals were fantastic, but as for the song? Mmm...

More from: mftmerkaba@netscapeonline.co.uk

a&r checklist

We receive a mountain of tapes every month, so to maximise the chances of having your demo reviewed (and, if you're really good, getting on *The Mix* CD) we need you to provide the following:

- Decent quality cassettes, (preferably chrome type II), CD, DAT or MiniDisc.
- A kit list of the gear used to produce the demo.
- A biography of the act. We want to know all about you, your studio and your production background!
- Artwork. This can be a picture of the act, or maybe an original groovy graphic.
- Most important of all, send us extremely cool music that genuinely deserves to be going places.

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Bath, England BA1 2BW

W PRODUCTIONS
EN-TRANCED

TM: Names and titles are everything, or so they (and we) say. So why the bloody hell did these guys pick one that instantly smacks of cheese and peas? Who knows? Perhaps they wanted to use it as a kind of umbrella moniker for what amounts to a kind of collective effort, which is essentially what *EN-Tranced* appears to be. Whatever. On this occasion, they are reprieved, because they've clearly got a good thing going here. One Martin Wilkinson is the brains behind the project, and, using just Acid, Sound Forge and a few sample CDs, he creates some credible, if slightly formulaic, house/techno. His strength lies in creating some exceedingly catchy riffs and grooves, and using them just enough to get them lodged in the listener's mind without becoming tedious. There's a wide range of styles on the demo, so it could well be advantageous for W Productions to either hone the style somewhat or use different names for each sub-project, as it were. Nevertheless, this is all very well-produced stuff. But the overriding concern here is that he's possibly gonna miss the slow boat to the dance floor. Still, perhaps another one's already on the horizon...

Sam: Must change the name – *EN-Tranced*, c'mon! Cheesy techno. 'Nuff said.

Sil: Not for me at all. Sorry!

Luke: Well, you can change the bloody name for a start!

More from: martin@wilkinson20.fsnet.co.uk

DRUE WILLIAMS
BETTER LATE THAN NEVER

TM: Strange little combination here. On the one hand you've got some laid-back, kinda post-trip hop nuances. But also thrown in is a really soulful and live-sounding vibe. Drue's got a great approach to production, too. Basically, he demos the material with his basic keyboard and guitar skills – his words, incidentally – before offering his musician pals money to interpret the tracks with guidance from the man himself. Those pals are evidently pretty nifty players, and with Drue in the producer's chair the results are impressive. His recording skills are pretty impressive as well. He's got some nice kit, including a Yamaha 03D mixer and Roland S760 sampler. But there is obviously more to his talents. He covers a multitude of styles on this demo from George Michael-esque ballad 'Nothing Ever Changes' (see industry comments, below) to FM-friendly rawk. And it's all done with panache. If he can hone his style further, he might get some kudos as a producer.

Sam: Good track. A bit AOR for me, though.

Sil: With an underlying bass line that gripped me from start to finish, the song had such potential but very quickly dived into '80s George Michael-land. And that, unfortunately, has got to be due to producer decisions. Although the sax was well placed, the drums plod and sounded boxy. Someone lost it here.

Luke: Oh dear.

More from: drueland@yahoo.com

ROB WILMOT
DEMO

TM: "Most of the tracks I make wouldn't make you get up and dance, but they are quite good for when you are off your face." So muses our friend Rob, and – without actually trying – he's not far wrong. He started experimenting with synths when he bought a now-desirable Roland SH-101 analogue 10 years ago, and has never looked back. This is pleasing, because the three tracks here demonstrate a mind that knows his dance music. Rob's got a DJ'ing background, which is obviously a help, and his production ideas are strong. Having so many influences going on can sometimes be a hindrance, but this guy has taken the best elements and worked them into his particular individual style with apparent ease. One little point, though: despite Rob's admission that this is out-and-out chill-time stuff, he does need to get a bit more movement into the music. 'FCUKT' has got some great sounds and ideas flying around, but it could do with more in the way of structuring. And the same is true for the rest of the tracks here. If Rob can get that nailed while maintaining his identity – and it would certainly appear that he's got the ability – then he deserves to make a killing.

Sam: Boring. Sorry.

Sil: Uninteresting and mindless looping makes this well-recorded track unmemorable.

Luke: What the...?

More from: rob@climax.co.uk

demo of the month

CHISWICKED: DEMO

TM: Instant groove factor is an important facet for dance music. We might be stating the bleeding obvious here, but it's always a bit weird when people don't make this a priority. Something to do with talent and ability, perhaps. Anyway, luckily this is what makes Chiswicked's tracks so accessible and damn catchy. What seems be going on with opener 'Aisor' (check it out on the CD) is a clever melange of very well-chosen loops and samples. In fact, the whole affair is produced from scratch. And the main glory of it is the restraint Chiswicked employ. (Still unsure about that name, though!) There are four or five composite parts, and because they all serve a purpose, both in the timbral and frequency areas, it works a treat.

The following tracks are more diverse. 'Bored' is a quirky and eloquently portrayed cross between Nirvana and the Beach Boys – bizarre. 'Roses' is a simply beautiful poppy ballad with some of the most inventive acoustic guitar recording we've clocked in a very long time, even on commercial releases.

It might be something of a cliché, but Chiswicked's next move should be to create a buzz by getting out five more. It's the singular most effective way to get your tracks from being great to f***ing brilliant. And it sounds like they've got already the ability in place to get there.

Sam: Bad Name Syndrome strikes again! Apart from that, though, I can't really fault the track. Therein, though, lies the problem; it just doesn't jump out at you like a great record should. There are too many records that sound like this, and so to get your track noticed by anyone it has to be absolutely f***ing brilliant, or absolutely f***ing shit! Being good just isn't enough.

Sil: I've listened to this track over half-a-dozen times and have to conclude that although it is well recorded, I'm personally unimpressed. I find it very hard to define the real heart and soul of such looped material and therefore it just doesn't grab me where it should.

Luke: Not all sure about this. It reminded me of a Loose Ends/Soul Family Sensation B-side. Terribly unoriginal, I'm afraid.

More from: cholak@btinternet.com

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CD info

track 02
Chiswicked: 'Aisor'
The melange of well-chosen loops and samples on this track makes it a real listening treat.

2000
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help file

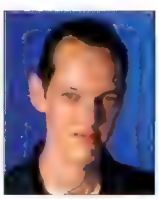
Problems in the studio? Ghosts in your machines? Contact the *Help File*, where our team of audio experts try to to solve your technical torments

the masterminds

this month's *Help File* team

NAME: Trevor Curwen
OCCUPATION: engineer
CHOSEN SUBJECTS: vintage equipment, classic sounds, guitar processing, fuseboxes

NAME: Tim Oliver
OCCUPATION: producer/engineer
CHOSEN SUBJECTS: mixers, processors, production tricks, leather sofas



NAME: Oz Owen
OCCUPATION: *TM* reviews editor
CHOSEN SUBJECTS: Logic Audio, MIDI, tube synthesis, faces on Mars

Voice concern

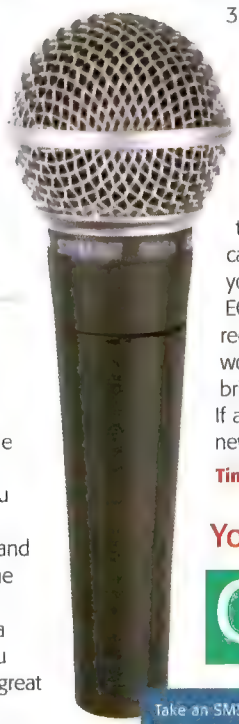
Q I'm in an indie-style band and we've started to make recordings of our songs on a PC running Logic Audio and an Audiowerk 8 card. We also have a Behringer mixer for getting audio in and out of the PC. I don't know much about recording (or PCs, for that matter!) and was looking to get some advice on getting slightly more impressive-sounding vocals. So far everything I've tried doesn't seem to give real consistency to the sound. Please help me as I'm beginning to lose patience with this whole recording lark!

Solomon Peters, via email

A Here are some things to look at without spending a million pounds on ultra-pro knick-knacks:

1. How does the voice sound in the recording room? If it's a bare-walled square room it probably sounds boxy and roomy. You can close this down by liberally hanging blankets, sleeping bags or such like on walls and windows. Hanging them slightly away from the wall helps deadening.

2. Microphone? It would be great to have a Neumann U47 valve mic but my guess is you haven't. There are alternatives that can get a great vocal sound, for example the Audio-Technica AT4033, which you can get for £250, or for under £100, a Shure SM58 is very sensitive for a dynamic mic. Get the singer to sing as close to the mic as possible to lessen the influence of the room, but watch out for boominess.



Take an SM58 into the studio? You'd be surprised how many people do

3. Cables? Make sure they're all balanced and with good connectors.

4. Preamp? A major cause of a bad sound is the preamp. Steer clear of desk mic channels if you can. It's worth investing in a standalone unit that combines a mic-pre with a compressor and perhaps some EQ if you can afford it. There are hundreds to choose from – spend as much as you can. Connect directly from the preamp to your recorder. Use as little compression and EQ as possible while recording, unless you're recording to analogue tape, in which case it's worth getting it about right before rather than bring up the noise afterwards.

If all of the above hasn't helped any, then get a new singer.

Tim Oliver

You *can* kick it

Q I am a composer with a small home studio who is attempting to write a commercial dance single. One of the synths I own is a Yamaha CS1x, which has many useful samples on it, including the drum sets of Roland's TR-808 and

glossary

Balanced
Where an electrical signal is split between two cables, one version being 'phase inverted'. By decoding at the receiving end, any noise induced during the cable run is eliminated

Band pass
A filter 'shape' used in Equalisation (see EQ). This type of filter allows a band (range of frequencies) to pass through, excluding anything outside that range. Other filter shapes include band-stop, high-pass, and low-pass.

Bit
Each '1' or '0' that makes up a digital word. In digital audio, the more bits, the higher the resolution. CD quality digital audio uses 16 bits per word.

Capsule
The small assembly on the end of a microphone that contains the diaphragm, or moving parts. Often inter changeable.

Compression
A processes that uses a user-set threshold level to activate a gradual attenuation on the audio. In this way, high levels are reduced and, subjectively, low levels are increased – hence 'compression'.

Condenser
A type of microphone that uses the reaction of a diaphragm to change a capacitance. Condenser microphones need an applied voltage to work, some with battery, some with an external 'phantom' power supply. Classic examples include AKG's C12 and Neumann's U87.

glossary

Diaphragm
A microphone's thin film 'plate' that moves with changes in air pressure. In condenser mics, the diaphragm, and a fixed back plate form a capacitor whose value changes according to the distance between the two.

Dynamic range
The maximum amplitude, or level, range that a piece of equipment can handle, or output.

Dynamic
A type of microphone that uses a coil (attached to the diaphragm) moving in a magnetic field to produce an alternating current proportional to the sound waves that move the diaphragm.

Dynamic range
The maximum amplitude, or level, range that a piece of equipment can handle, or output.

Effects
Any software or hardware device that alters the nature of a signal, such as a reverb unit, pitch-shifter or vocoder.

EQ
Equalisation. Frequency (pitch) selective filtering of audio in order to boost or cut levels inside the specified frequency range (bandwidth).

Filter
A circuit that operates on a selected frequency range. For example, a high-pass filter lets only frequencies above a selected range through. Common controls are frequency selection, Q (bandwidth) and level.

Frequency response
A measure of spectral colouration introduced by a system. It is usually represented as a graphic plot with frequency and level axis, showing the resulting output curve from a 'flat' input. It can also be expressed as a bandwidth with level variation, for example 20Hz to 20kHz ±3dB.

The Daddy of the drum machine world – Roland's TR-909

TR-909. I'm using the hi-hats, claps and bass drum from the TR-909 set as they are used on many successful dance tracks. However, I am having problems with the bass drum sample.

Although it is the strongest bass drum sound I have, it doesn't seem to provide enough 'kick' for my tracks. Even after boosting with low EQ from my desk (Spirit folio F1 3-band EQ), when comparing my tracks to big hits such as 'Gouryella', 'Toca's Miracle' and many others, my bass drum still doesn't appear to be strong enough.

There are a lot of expensive drum machines on the market and I wouldn't know where to start. I would be grateful for any advice.

Sam Cole, by email

A Well, ask anyone who owns a TR-909 and they'll tell you there's just no substitute for the real thing – and the fact that the 909's kick has featured on tens of thousands of dance tracks tells us two things. Firstly, there probably *is* no substitute, and secondly, haven't we all had enough of it by now?

But let's leave that festering can of worms that I've carelessly opened to one side. In terms of drum machines, you might want to stay analogue and check out the JoMoX range – they kick like a mule *and* there's more variety to the percussion. Look out for their 909-style X-Base 09 (£499). On the software front, ReBirth's 909 kick is ok, but not what you might call 'spot-on'.

Or you could sample a killer kick drum from any number of sample CDs, assuming you've got a sampler. That might be seen as a touch defeatist, but hey – life's too short... and last month's free CD that came with *The Mix* had a whole bunch of dance-style kicks on it from Hard House supremo Paul Janes (for back issues, phone 01458 271122).

But if you *really* want to do it your own way, you'll need a combination of outboard gear/plug-ins to get the right results. A parametric EQ and/or, more radically, a filter will help to remove unwanted frequencies, giving your kicks more power where you need it.

And if you've got no compression on that kick drum then it's time to invest! Compression really is vital to getting those drums thumping, and indispensable when it comes to dance music. There are shedloads to choose from in all price brackets, so it's hard to know what to recommend. *The Mix* 77 had a review of FMR Audio's RNC1773 compressor, which did pretty well, or check out the JoeMeek range. Both offer inexpensive ways to add compression to your set-up.

Alternatively, why not go and buy an original 909 – it might cost anything up to £900, but hey – some gear never goes out of fashion!

Oz Owen

Multitrack misery

Q I'm new to *The Mix* and also new to home recording, and I'm interested in picking up one of these three digital recorders:
1. Tascam 564 digital portastudio
2. Yamaha MD4S MiniDisc recorder
3. Roland VS-840 multitrack recorder

I've gone to all the stores in Sydney but no-one seems to be able to give me all the ins and outs on these recorders and I really can't afford (money-wise) to take a chance. Any help or information would be greatly appreciated.

Chris, by email

A Both the Yamaha and Tascam machines are 4-track portastudio-type units based on the MiniDisk digital format. Both are good standalone, entry level machines for anyone wanting to take up home recording, with the added advantage that they can be integrated into a larger system at a later date by virtue of their individual track outputs, which can be connected to a separate mixing desk.

The main difference in terms of features appears to be that the more expensive 564 has two extra stereo channels with faders, useful for connecting the outputs of MIDI instruments into the system, and also sports an S/PDIF digital output, whereas the MD4S has no digital output. Tascam tell us that they have discontinued the 564, but the Yamaha MD4S is still readily available.

The Roland VS840 is perhaps a more sophisticated alternative. It features a digital mixer, eight tracks rather than four (although you are limited to four tracks of simultaneous recording), and uses 100Mb Zip discs as its storage medium. The VS840 also features an onboard effects processor, a dedicated input for guitars and a 'virtual' track system which allows you to store up to eight alternative takes of each track. The unit has,

Korg D16: everyone's making sophisticated portastudios these days

however, been discontinued and replaced by the VS840EX, which in turn has been replaced by the VS840GX.

As your preferred models are quite old and two have in fact been discontinued, I'm assuming that you are on a tight budget and are buying second-hand. The MiniDisk-based players offer a simpler hands-on user interface which may be more suitable for a beginner, whereas the Roland machine has more in the way of facilities but has a steeper learning curve. Try to get a demonstration of each machine if you can and see what you are most comfortable with.

Things have moved on quickly since those machines were released and, finances permitting, you might be wise to consider one of the newer generation of studio-in-a-box machines. As well as the VS840GX, there are the Boss BR8, the Fostex FD4 and FD8 and the Korg D8 and D16.

Trevor Curwen

Back seat driver

I'm using an E-MU APS to produce dance music, which brought me to release my first remix and full maxi-single already. As you might have noticed, there are some problems regarding the new drivers that E-MU has promised on the APS newsgroup and in NAMM in LA, named v2.0.

The expected release date is well overdue, which is something that isn't so rare in software development, of course. So this is no problem for me, I can understand this.

What *is* a problem is that E-MU stopped communicating with the users of the APS. This causes a lot of gossip, swearing and even hysteria among the APS owners. I've read that E-MU has fired half the department, that there will never be new drivers for this card, that Creative is taking its hands off the APS, that there will be a new card, and so on.

Could you please contact E-MU, and get some information about what phase of development these drivers are at?

Mark Otten, Holland

I got in touch with E-MU about this and they issued the following statement:

"E-MU/Ensoniq's policy is to keep our products current whenever possible. We regret to announce that the development of Version 2.0 Drivers and Applications for the APS has been suspended indefinitely. We understand that this is upsetting for customers who have been looking forward to this release and want to thank all of those who participated in news group discussions regarding same.

We need to remind all customers that any and all online postings regarding APS 2.0 by E-MU/Ensoniq have been followed by the following disclaimer:

DISCLAIMER

This document is intended as a discussion document only and does not constitute a contract to provide any of the features discussed. These features may be changed at our discretion and without prior notice.

We apologize for any inconvenience this has caused and will continue to sell and support the APS to the best of our abilities. We will also continue to monitor this and other news groups related to E-MU products."

Max Mobley, Product Manager, E-MU/Ensoniq

So, hope that's cleared up any confusion for all you APS users eagerly awaiting V2.0 drivers.

Oz Owen

E-MU's APS: plans for version 2.0 drivers have been suspended indefinitely

glossary

Interface
Anything that aids interconnection. It could be a screen to a computer user, or the MIDI protocol to MIDI equipment.

Multitracker
Any recorder that is capable of recording more than two tracks of audio, and that has the ability to record each one separately.

Outboard
Term used for peripheral equipment that doesn't directly generate or record audio. Includes effects processors, preamps, interfaces, and so on.

Parametric
Type of equalisation where gain, centre frequency, and bandwidth are all adjustable.

Phantom power
A DC voltage (usually 48V) that is applied to a condenser or capacitor microphone.

Phase
A time relationship between two signals measured in degrees. If you add two identical signals together that are 180° out of phase, they will cancel each other out.

Plug-in
A miniature program or utility which works within or alongside another program. For instance, the latest VST instruments are plug-in soft synths and drum machines that can be used in tandem with Cubase VST.

S/PDIF
Sony/Philips Digital interface. Standard digital audio connection with a status bit for copy protection. Usually on a phono (RCA) connector.

Soundcard
Describes any computer 'card' (usually PCI) that acts as an audio interface, such as the Creative Labs SoundBlaster series, the Digidesign Audio Media III, and Creamware's Pulsar II.

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Roland R5 drum machine with manual. Tel Phil on 0973 489881

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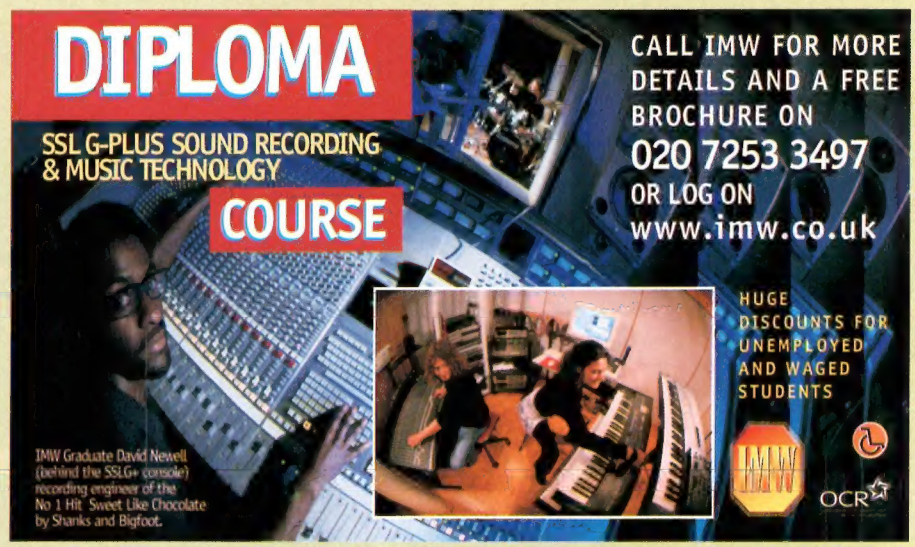

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